EPSON® STYLUS® 1500

INK JET PRINTER

Reference Guide

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FCC Compliance Statement

For United States Users

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- ❑ Reorient or relocate the receiving antenna.
- ❑ Increase the separation between the equipment and receiver.
- ❑ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ❑ Consult the dealer or an experienced radio / TV technician for help.

WARNING

The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

For Canadian Users

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

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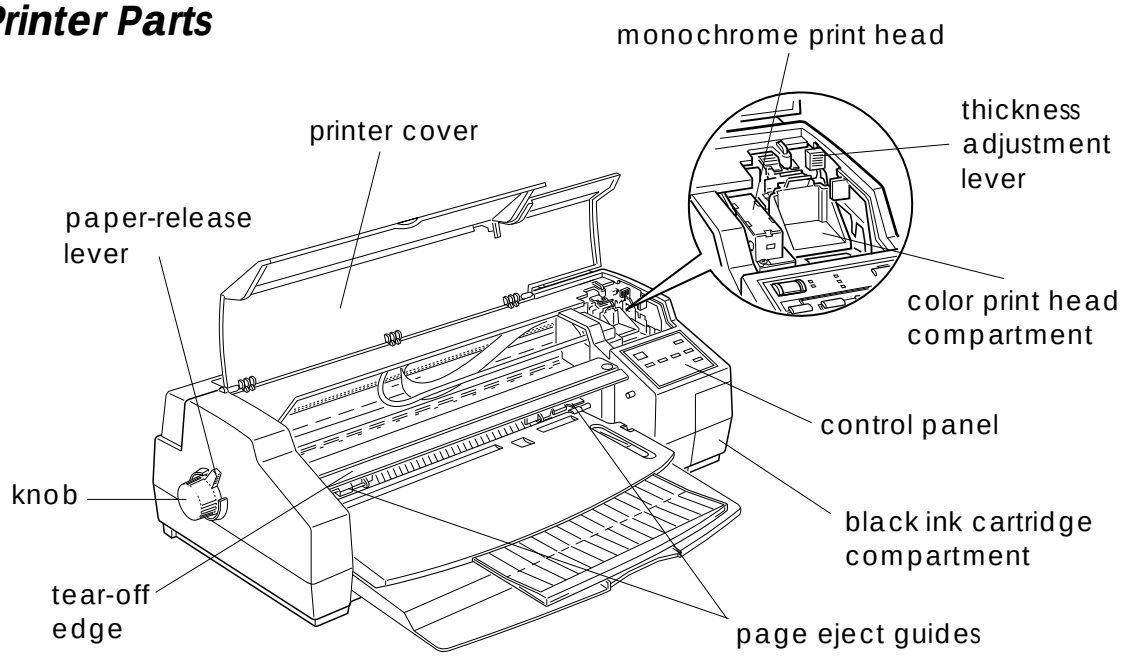
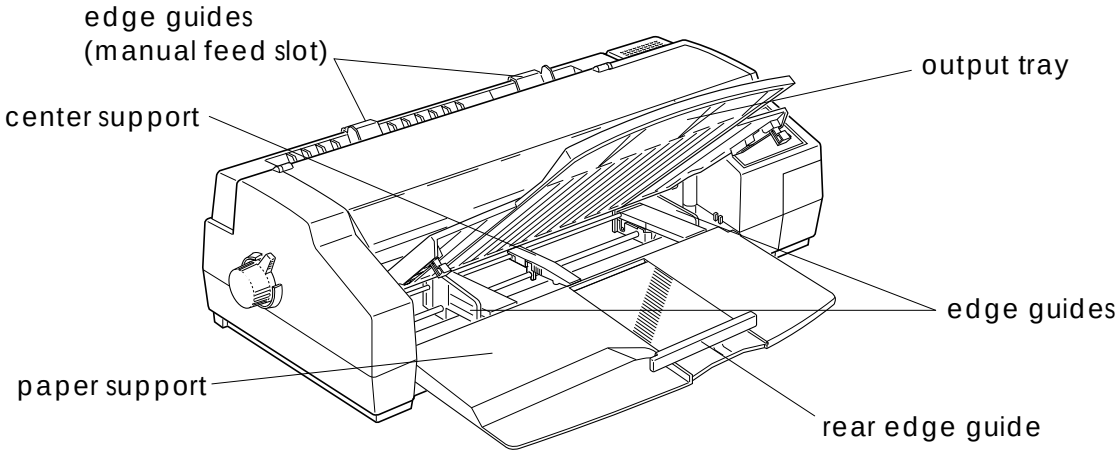
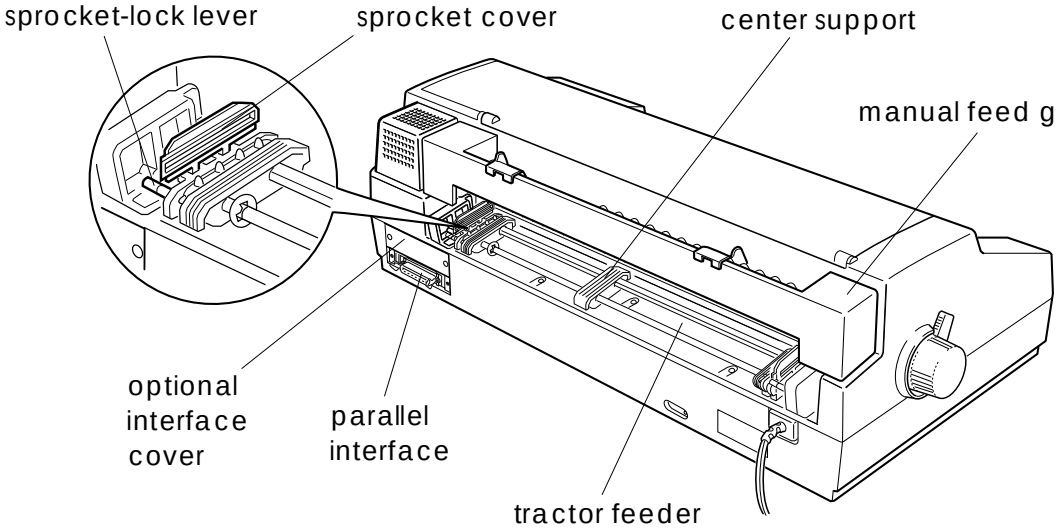






Introduction

This manual contains general operating and maintenance instructions for your EPSON® Stylus® 1500, as well as troubleshooting guidelines and technical specifications. For instructions on setting up your printer and using the Microsoft® Windows® or Apple® Macintosh® printer driver, see the appropriate *Setup and Software Guide.*

Note:
After you install the driver, check the ReadMe icon in the EPSON group in Windows or the README1st icon on the Macintosh hard disk for the latest information about your printer and software.

Energy Star Compliance

As an Energy Star Partner, EPSON has determined that this product meets the Energy Star guidelines for energy efficiency.

The EPA estimates that if all desktop computers, printers, and other peripheral devices met Energy Star standards, energy cost savings would exceed $1 billion annually and carbon dioxide emissions would be reduced by 20 million tons.

All of EPSON's ink jet printers conform to Energy Star standards.

Energy-saving Tips

Here are a few tips you can use to be even more energy-wise:

- ❑ If your monitor isn't Energy Star compliant, turn it off when you're not using it.
- ❑ Turn off your computer, printer, and monitor each day when you are done using them.
- ❑ Use the print preview option in your software to catch errors before you print a document.
- ❑ If you have an electronic mail system available to you, send E-mail rather than memos. Not only is this faster, but you'll save paper and storage space too.

How to Use This Manual

After you have set up the printer as described in the *Setup and Software Guide*, refer to this manual for the following information:

Chapter 1, "Paper Handling," explains how to select the right paper or other media for your print job and load it in your printer.

Chapter 2, "Controlling the Printer," provides instructions for managing the printer's operation through its control panel. It also explains how to access the printer's Default Setting mode.

Chapter 3, "Maintenance," explains how to clean the print heads, replace the ink cartridges, and clean and transport the printer.

Chapter 4, "Troubleshooting," provides solutions to printing problems you may encounter.

Appendix A, "Using Optional Interfaces," describes optional interfaces you can install in your printer to enhance its capabilities and explains how to install an interface board.

Appendix B, "Technical Specifications," gives the specifications for the Stylus 1500 printer.

Appendix C, "Commands and Character Tables," lists the EPSON ESC/P 2™ and IBM® XL24E emulation commands supported by the printer and shows the printer's built-in character tables.

A **Glossary** and an **Index** are provided at the end of the manual.

Where to Get Help

If you purchased your printer in the United States or Canada, EPSON provides customer support and service through a network of Authorized EPSON Customer Care Centers. EPSON also provides the following services when you dial (800) 922-8911:

- ❑ Technical information on the installation, configuration, and operation of EPSON products
- ❑ Assistance in locating your nearest Authorized EPSON Reseller or Customer Care Center
- ❑ Customer relations
- ❑ EPSON technical information library fax service
- ❑ Product literature on current and new products.

You can purchase ink cartridges, paper, parts, printed manuals, and accessories for EPSON products from EPSON Accessories at (800) 873-7766 (U.S. sales). In Canada, call (800) BUY-EPSON.

If you purchased your printer outside the United States or Canada, contact your EPSON dealer or the marketing location nearest you for customer support and service.

If you need help with any software program you are using, see that program's documentation for technical support information.

Electronic Support Services

If you have a modem, the fastest way to access helpful tips, specifications, drivers, application notes, DIP switch or jumper settings, and bulletins for EPSON products is through the following online services.

EPSON Bulletin Board Service

You can call the EPSON Bulletin Board Service (BBS) at (310) 782-4531. No membership is required. Make sure your communications software is set to 8 data bits with 1 stop bit, no parity bit, and a modem speed up to 28.8 Kbps. See the documentation that came with your communications software for more information.

CompuServe online support

CompuServe® members can call the Epson America Forum on CompuServe. If you are already a member, simply type GO EPSON at the menu prompt to reach the Forum.

If you are not currently a member, you are eligible for a free introductory membership as an owner of an EPSON product.

This membership entitles you to:

- ❑ An introductory credit on CompuServe
- ❑ Your own user ID and password
- ❑ A complimentary subscription to *CompuServe Magazine*, CompuServe's monthly publication.

To take advantage of this offer, call (800) 848-8199 in the United States and Canada and ask for representative #529. In other countries, call the following U.S. telephone number: (614) 529-1611, or your local CompuServe access number.

Important Safety Instructions

Before using your printer, read these safety instructions to make sure you use the printer safely and effectively:

- ❑ Turn off and unplug the printer before cleaning. Clean with a damp cloth only. Do not spill liquid on the printer.
- ❑ Do not place the printer on an unstable surface or near a radiator or heat register.
- ❑ Do not block or cover the openings in the printer's cabinet or insert objects through the slots.
- ❑ Use only the type of power source indicated on the printer's label.
- ❑ Connect all equipment to properly grounded power outlets; do not use an adapter plug. Avoid using outlets on the same circuit as photocopiers or air control systems that regularly switch on and off.
- ❑ Do not let the power cord become damaged or frayed.
- ❑ If you use an extension cord with the printer, make sure the total ampere rating of the devices plugged into the extension cord does not exceed the cord's ampere rating. Also, make sure the total of all devices plugged into the wall outlet does not exceed 15 amperes.
- ❑ Except as specifically explained in this *Reference Guide,* do not attempt to service the printer yourself.
- ❑ Unplug the printer and refer servicing to qualified service personnel under the following conditions:

  If the power cord or plug is damaged; if liquid has entered the printer; if the printer has been dropped or the cabinet damaged; if the printer does not operate normally or exhibits a distinct change in performance. Adjust only those controls that are covered by the operating instructions.

Chapter 1

Paper Handling

Read this chapter for information about choosing the best paper or other media for your printing needs and for instructions on loading them in your printer.

Choosing Paper and Other Media

You can use most plain paper with your printer and achieve good results. Coated papers give you better results because they reduce the amount of ink that is absorbed. However, if the coated paper does not absorb enough ink, the ink can smear.

To ensure the best results, EPSON provides special papers and transparencies that are formulated for the inks used in EPSON ink jet printers. These papers include the following:

- **EPSON special coated paper for 360 dpi**. Use this paper for best results when printing at 360 dpi.
- **EPSON special coated paper for 720 dpi**. Use this paper for best results when printing at 720 dpi.
- **EPSON high-quality glossy paper**. Use this paper with 720 dpi to produce camera-ready composites. When printing on glossy paper, use only EPSON high-quality glossy paper.
- **EPSON transparency film**. When printing transparencies, use only EPSON transparencies. For best results, use transparencies within six months of opening the package. Do not use 720 dpi when printing transparencies.

To order EPSON papers and transparencies, contact your dealer or call EPSON Accessories at (800) 873-7766 (U.S. only). In Canada, call (800) BUY-EPSON for sales locations. Use the following part numbers when ordering:

Paper or other media	Size	Part number
Special coated paper for 720 dpi	Letter (8.5 × 11 inches) Legal (8.5 × 14 inches) B (11 × 17 inches) Super A3/B (13 × 19 inches)	S041062 S041067 S041069 S041070
Special coated paper for 360 dpi	Letter (8.5 × 11 inches) Super A3/B (13 × 19 inches)	S041060 S041066
High-quality glossy paper	Letter (8.5 × 11 inches) B (11 × 17 inches) Super A3/B (13 × 19 inches)	S041072 S041074 S041075
Transparency film	Letter (8.5 × 11 inches)	S041064

The built-in tractor feeder allows you to print on continuous paper up to 17 inches (432 mm) wide or banner paper up to 16 inches (406 mm) wide. You can also use the tractor feeder to print on continuous labels.

Setting the Thickness Adjustment Lever

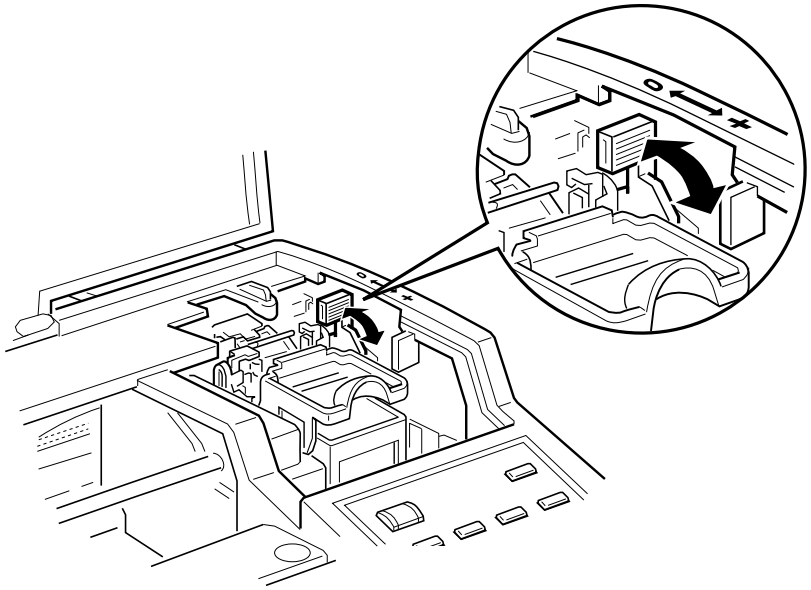
Before you start printing, you should check the thickness adjustment lever to make sure it is set correctly for the type of paper or other media you are loading. Use the table below to set the thickness adjustment lever for your media type.

C ***Caution:***
Before you change the lever setting, make sure there is no paper in the paper path and that printing is paused. To do this, press the Pause *button or turn off the printer.*

Media type	Thickness adjustment lever position	Media type	Thickness adjustment lever position
Standard paper	0	Envelopes	+
Transparency film	0	Previously smeared documents	+
Labels	0		
Continuous paper	0		

If a document is smeared, set the thickness adjustment lever to the + position (regardless of the paper type) and print it again.

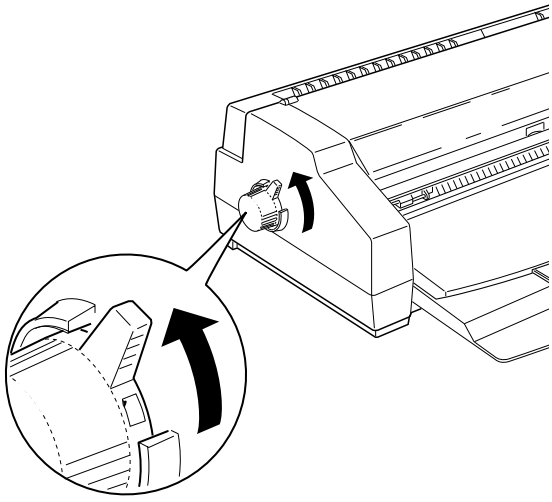
To access the lever, open the printer cover; the lever is in the right back corner, as shown in the following illustration.



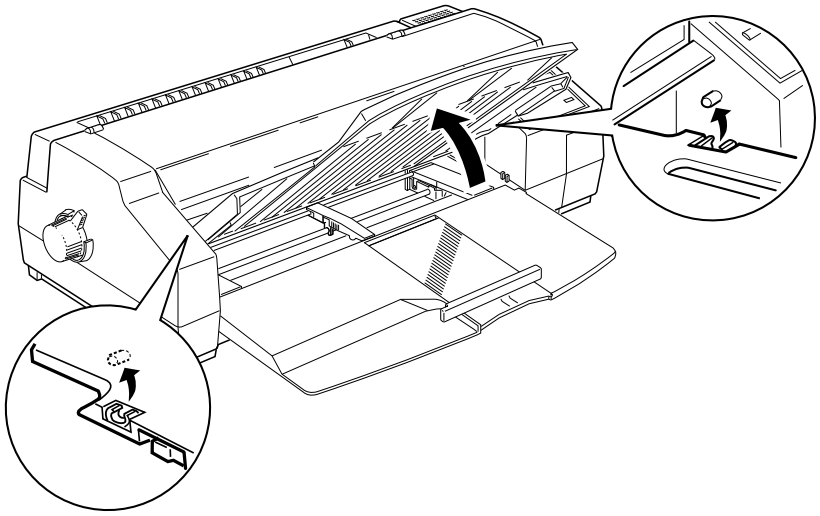
Loading Plain Paper

The following procedure explains how to load plain bond, letter-size paper in the sheet feeder. You can load up to 100 sheets of plain paper. Always load plain paper with the printable surface facing down. The printable surface is marked with an arrow on most plain paper packaging.

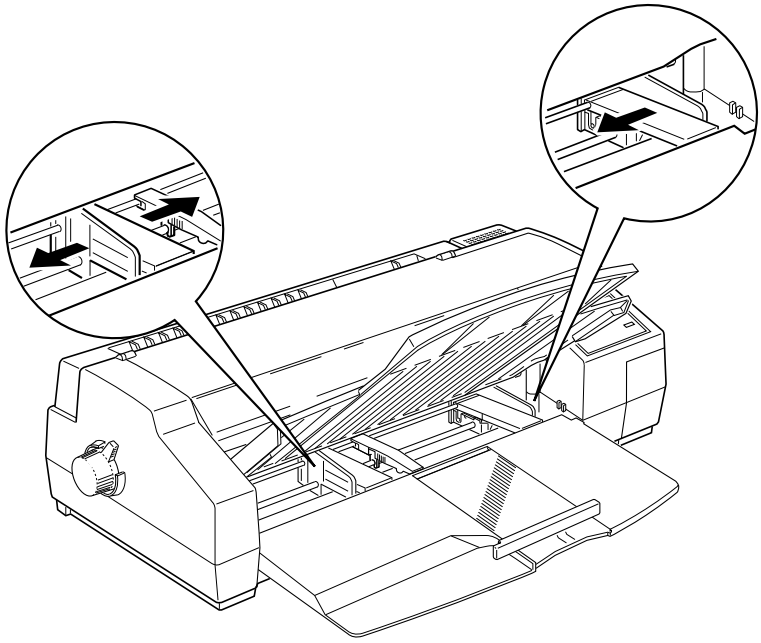
1. Make sure the paper-release lever is set to the single-sheet position.



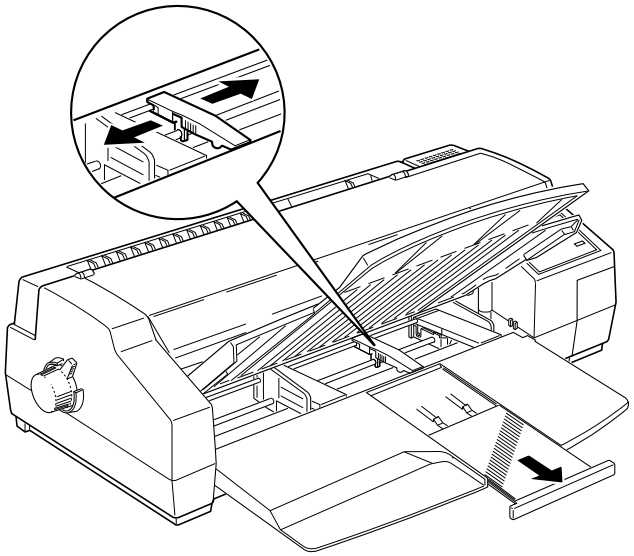
2. Raise the output tray until it locks in the upright position.



3. Slide the right edge guide to the left as far as it will go. Then slide the left edge guide to match the width of your paper.

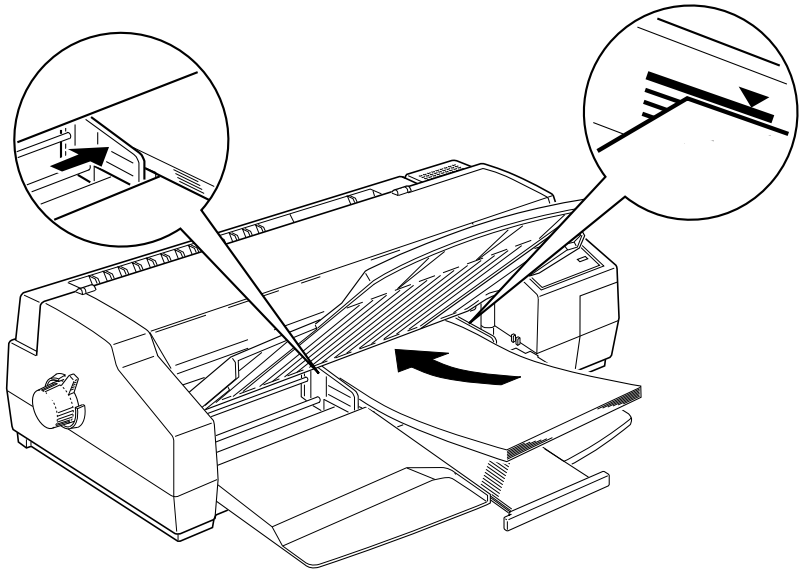


4. Move the center support to a point midway between the edge guides. Then gently extend the rear edge guide until it stops.



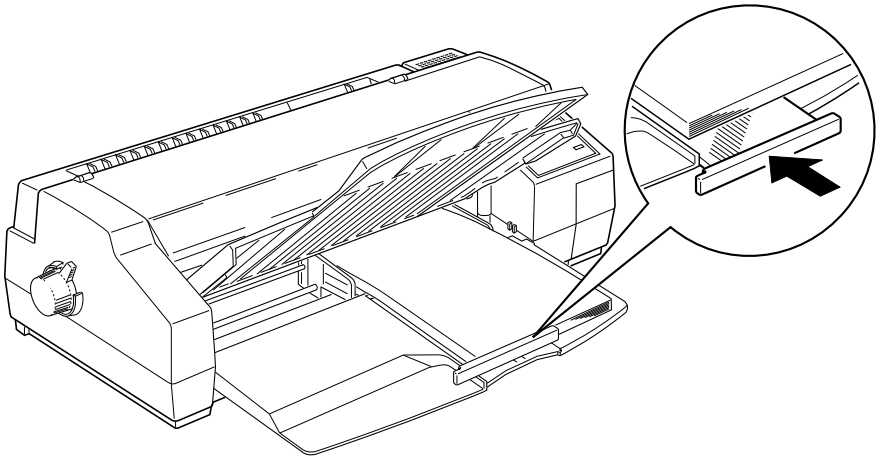
5. Fan a stack of paper; then tap it on a flat surface to even the edges.

6. Load the stack of paper, printable side down, all the way into the sheet feeder. Make sure the right edge of the stack is against the right edge guide. Next, slide the left edge guide against the left edge of the paper.

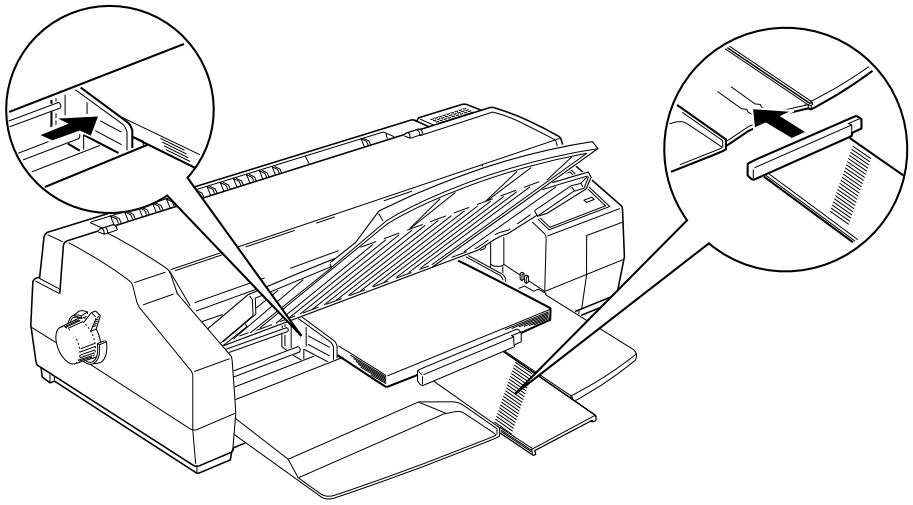


Note:
The sheet feeder can hold up to 100 sheets of 17-lb (64 g/m^2) plain paper. Do not load paper above the arrow mark, which is located on the inside surface of the edge guide.

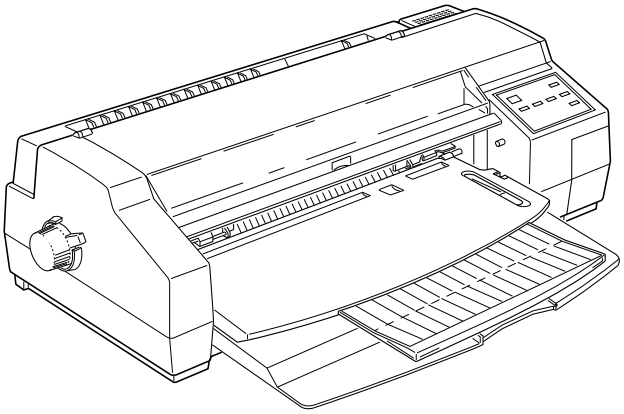
7. Adjust the rear edge guide to match the length of your paper.



When you load paper in the landscape direction (wider than it is tall), the rear edge guide may not match the length of your paper. In this case, remove the rear edge guide and re-insert it as shown.



8. Lower the output tray to the printing position. Make sure that the rear edge guide of the paper tray is positioned under the output tray. The rear edge guide must be under the output tray to allow room for the paper loaded in the sheet feeder and to prevent a paper jam.



Loading Oversized Paper

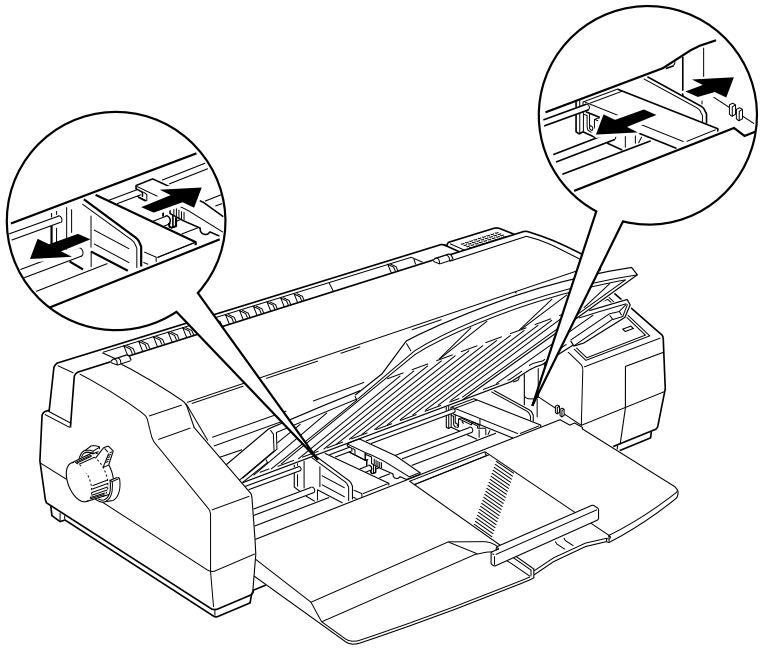
When you load paper more than 14.3 inches (364 mm) wide or 16.5 inches (420 mm) long, you need to adjust the edge guides on the sheet feeder and the output tray as follows.

Note:
You can load paper up to 17 inches (432 mm) wide; however, the maximum printable width is 13.6 inches (345 mm).

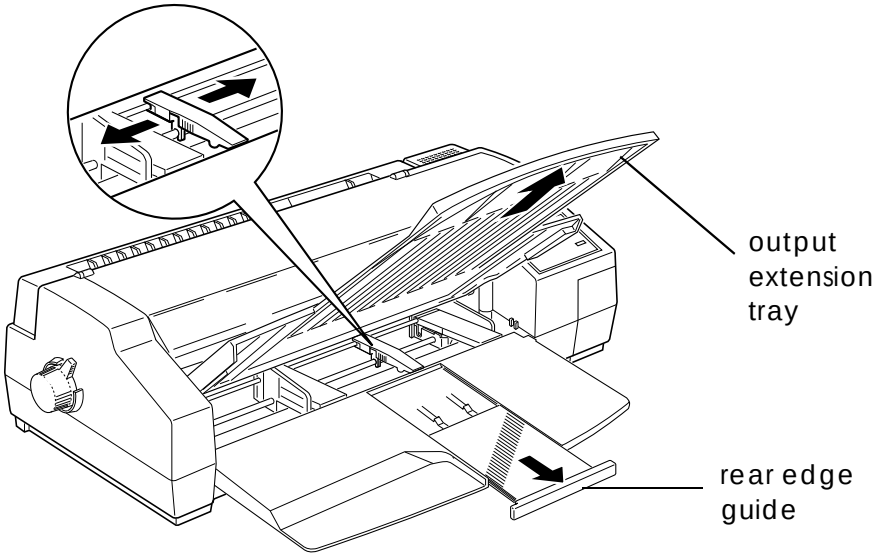
1. Make sure the paper-release lever is set to the single-sheet position. (See page 1-4.)

2. Raise the output tray until it locks in the upright position.

3. Slide the edge guides on the sheet feeder to match the paper's width. If you plan to print on paper more than 14.3 inches (364 mm) wide, move the right edge guide to the right as far as it will go. If you plan to print on paper that is 14.3 inches wide or less, move the right edge guide to the left until it stops.



4. Move the center support to a point midway between the edge guides.

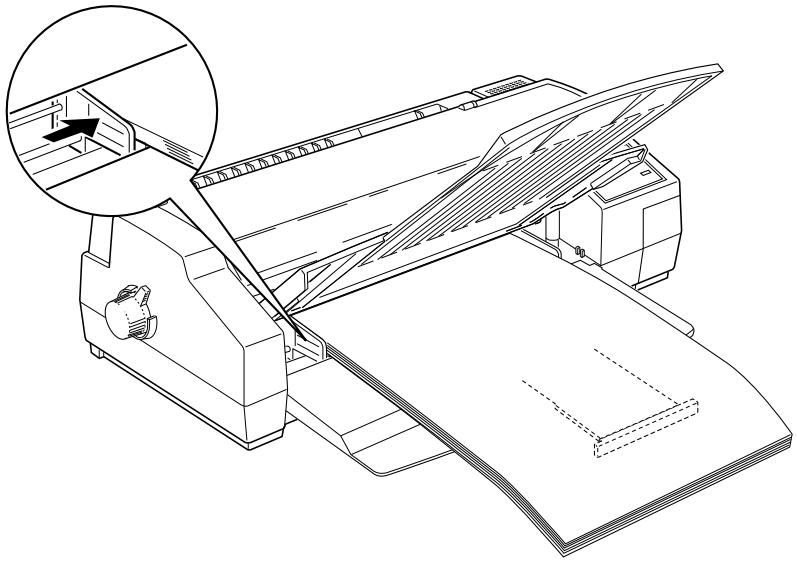


5. Pull the output tray extension out as far as it will go.

6. Gently extend the rear edge guide of the paper support until it stops.

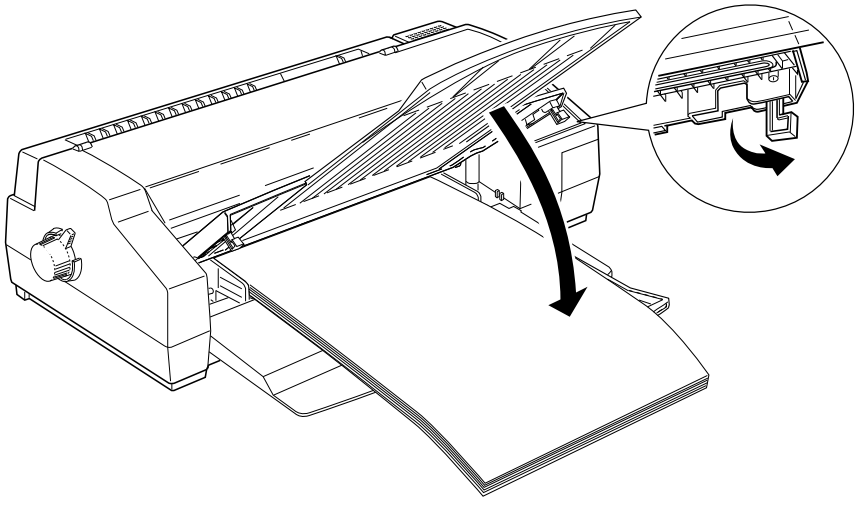
7. Fan a stack of paper; then tap it on a flat surface to even the edges.

8. Load the stack of paper, printable side down, so that the right edge of the stack is against the right side of the sheet feeder. Next, slide the left edge guide against the left edge of the paper.



Note:
Do not load more than 30 sheets of oversized paper into the sheet feeder. Also, do not load paper more than half way to the arrow mark, which is located on the inside surface of the edge guide. Otherwise, a paper jam may occur.

9. Extend the legs under both sides of the output tray. Then lower the tray to the printing position.



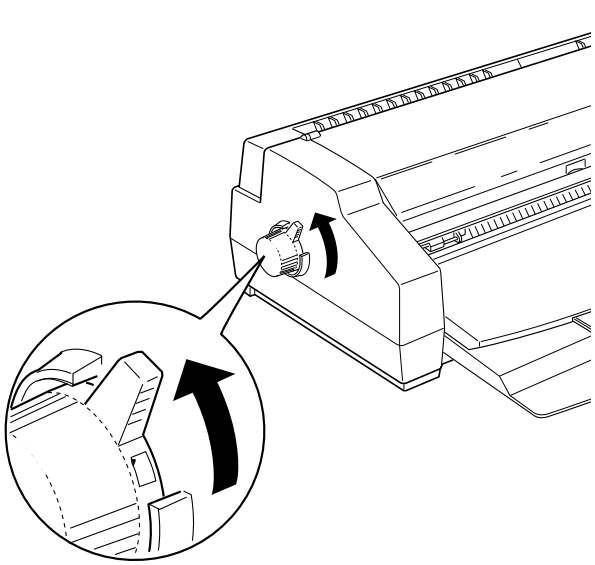
Loading Single Sheets Manually

You can load single sheets of paper from the manual feed slot without removing the paper supply from the sheet feeder. This allows you to print single sheets of labels or manually feed envelopes, for example. The slot can accommodate single sheets of paper from 6.3 inches (160 mm) to 17.0 inches (432 mm) wide.

Note:
When you load paper manually, you can adjust the loading position using micro adjust mode if printing appears too high or low on the page. See "Adjusting the Loading Position" on page 1-28.

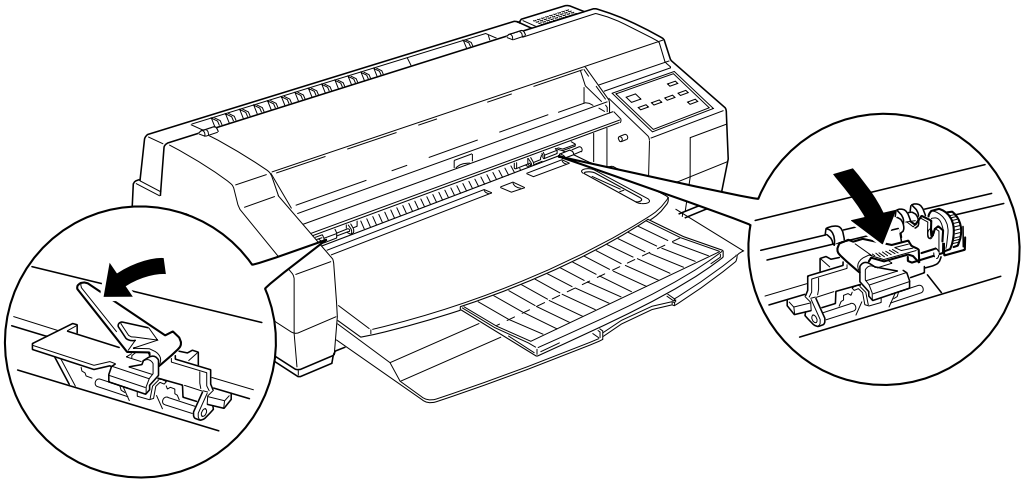
Follow these steps to load a single sheet in the manual feed slot:

1. Turn on the printer. Make sure that the paper-release lever is set to the single-sheet position.



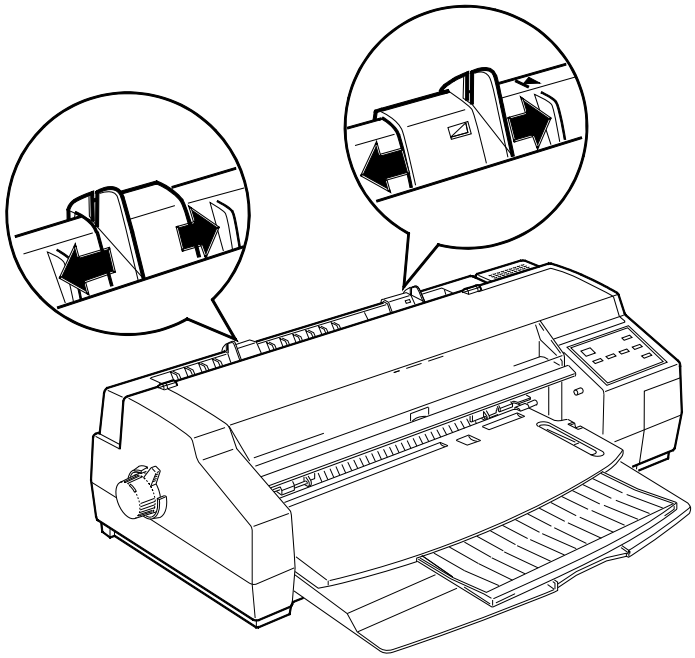
Note:
If a sheet of paper is in the manual feed slot before you turn on the printer, the paper is ejected with nothing printed.

2. Lower both page eject guides.

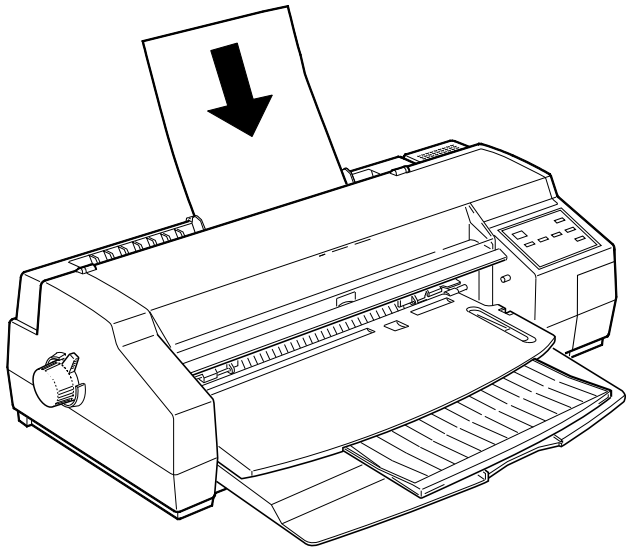


3. Position the right edge guide to the right of the arrow mark on top of the manual feed slot. Then slide the left edge guide to match the paper's width.

Note:
If loading paper more than 14.3 inches (364 mm) wide, move the right edge guide to the right as far as it will go.



4. While holding both edges of the paper, load it printable side up into the slot until it meets resistance, aligning the right edge of the paper with the right edge guide. Make sure the left edge guide matches the paper's width.



The printer loads the sheet automatically. If the sheet does not load straight, press the Load/Eject button to eject it. Then try loading it again.

5. Use the print command in your software to start printing a document.

   When the printer finishes printing, it ejects the sheet. If the sheet does not eject completely, press the Load/Eject button.

6. To switch back to the sheet feeder, press the Load/Eject button or send data to the printer without inserting a sheet into the manual feed slot. The page eject guides raise automatically and the printer loads paper from the sheet feeder.

Note:
If your output is smeared, try removing sheets one at a time as they are printed.

Using Special Papers and Other Media

When using special coated paper, glossy paper, transparencies, envelopes, labels, or banner paper, keep the following in mind:

- ❑ Use special coated paper and glossy paper within one year of purchase. Use transparencies within six months.
- ❑ Do not touch the printable surface of the paper; hold the sheets by their edges. The moisture and oils on your hands can reduce print quality.
- ❑ After printing on high-quality glossy paper or transparencies, remove each sheet from the output tray immediately. Make sure each sheet is dry before stacking.
- ❑ Return unused sheets and envelopes to their original package as soon as possible after you finish printing. Keep the paper wrapped and store flat in a dry, protected area. Unfavorable storage conditions—especially high temperature, humidity, and direct sunlight—can damage the media.
- ❑ Follow any other special loading procedures included in the rest of this section.

Loading Coated or Glossy Special Papers and Transparencies

Use the same procedure described in "Loading Plain Paper" on page 1-4 or "Loading Oversized Paper" on page 1-8 to load special papers and transparencies in the sheet feeder. You can load up to the following number of sheets:

- 70 sheets of special coated paper. However, if you load legal-size or oversize special coated paper for 360 or 720 dpi, do not load more than 30 sheets and make sure the paper does not reach more than halfway to the arrow mark on the inside of the edge guide.
- 50 sheets of transparency film
- 30 sheets of high-quality glossy paper.

Note:
Use only EPSON transparency film and high-quality glossy paper.

Remember to change the printer driver settings so they are appropriate for the media you loaded. See your *Setup and Software Guide* for instructions.

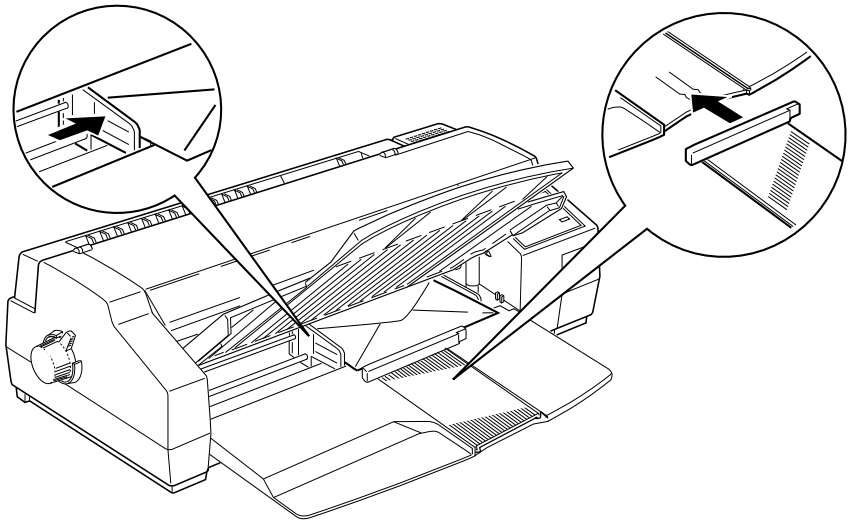
Loading Envelopes

For specifications on the thickness and weight of the envelopes you can load, see Appendix B. Do not use envelopes that are curled or folded, or ones that are too thin; they may curl during printing. Also, do not choose 720 dpi resolution for envelope printing.

Follow these steps to load envelopes:

1. Make sure you set the thickness adjustment lever to the correct position for envelope printing, as described on page 1-3.

2. You can load up to 10 envelopes in the sheet feeder with the printable side facing down as shown.

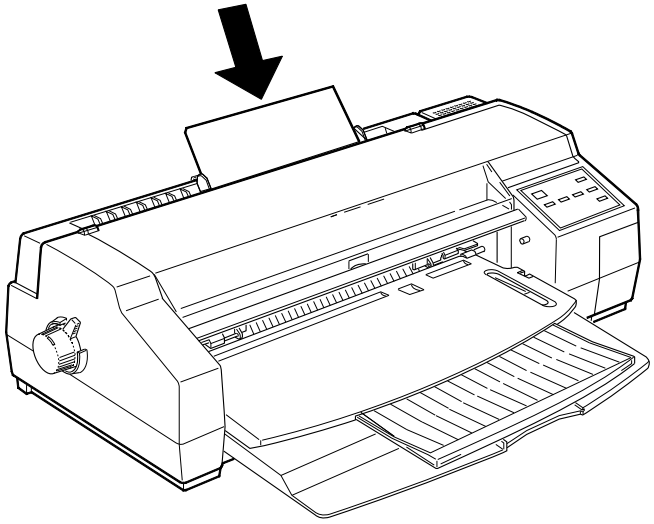


3. Adjust the left edge guide so the envelopes feed straight into the paper path.

4. If you are printing on oversize envelopes, remove the rear edge guide and reinstall it to match the length of the envelope, as shown above.

5. If you are using the manual feed slot, position the right edge guide to the right of the arrow mark on top of the manual feed slot. Then slide the left edge guide to match the envelope's width.

6. Load the envelope with the flap edge first and the printable surface facing up.



The printer loads the envelope automatically. If the envelope does not load straight, press the Load/Eject button to eject it. Then try loading it again.

7. Change the printer driver settings so they are appropriate for the envelopes you loaded. (See your *Setup and Software Guide*.)

Note:
Before printing on envelopes from DOS using the sheet feeder, the printer must be in the envelope printing mode. To enter this mode, load a single envelope from the sheet feeder and then eject it by pressing the Load/Eject *button. The printer will now feed envelopes correctly.*

Loading Labels

You can print on labels using single sheets or continuous sheets. For loading instructions, follow the procedure under "Loading Single Sheets Manually" on page 1-11 or "Loading Continuous Paper" on page 1-22. When printing on labels, keep the following in mind:

- ❑ Do not use labels that are curled or folded. Also avoid using labels that are peeling off the backing.

- ❑ Use labels only under normal operating conditions:
  Temperature 15 to 25°C (59 to 77°F)
  Humidity 40 to 60% RH

- ❑ If your labels don't feed properly or jam, see Chapter 4, "Troubleshooting."

- ❑ Make sure you load labels with the printable surface facing up.

For single sheets of labels:

- ❑ Load sheets of labels into the manual feed slot one at a time. Otherwise, they may not feed properly. See "Loading Single Sheets Manually" on page 1-11. Also, see Appendix B for specifications.

- ❑ Use labels that completely cover the backing sheet; otherwise, they may peel off and become jammed in the printer.

For continuous labels:

- ❑ Choose labels mounted on a continuous backing sheet with sprocket holes for use with the tractor feeder. Follow the instructions on page 1-22 to load continuous labels like any other type of continuous paper.

- ❑ Make sure the printing stays entirely within the printable area. See Appendix B for specifications.

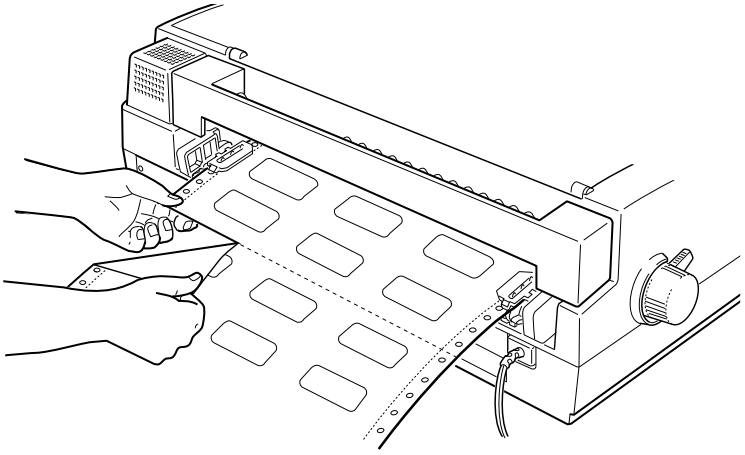
- ❑ Make sure the auto tear-off feature is set to off in the Default Setting mode when using continuous labels. (See page 2-6.)

- ❑ Do not leave labels loaded in the printer between jobs; they may curl around the platen and jam when you resume printing.

Removing continuous labels

Follow these steps to remove labels printed on continuous paper:

1. Tear off the fresh supply of labels at the rear of the printer.



2. Press the LF/FF button to advance the remaining labels out of the printer.

C ***Caution:***
Never feed labels backward through the printer; they can easily peel off the backing and jam the printer.

Loading Banner Paper

To load banner paper, follow steps 1 through 4 under "Loading Single Sheets Manually" on page 1-11.

Note:
If you are printing from Windows, choose Manual Feed Slot (Banner) as the paper source.

If you are using the Macintosh printer driver, turn off the Page Gap setting. See your Setup and Software Guide for Macintosh *for more information.*

If your document is longer than 44 inches, its length must be evenly divisible by the paper size you choose. For example, if you are printing a document that is 66 inches long, choose Long Paper 17 × 33 in from the Paper Size list. The printer automatically multiplies the setting (33 inches) by 2 to match your document length.

Removing Banner Paper

After you finish printing on banner paper, you must remove it from the manual feed slot before turning off the printer. Follow these steps to remove banner paper:

1. Cut off the paper at the back of the printer where it enters the manual feed slot.

2. Press the Load/Eject button to feed the paper out of the printer.

Printing on Continuous Paper

The built-in tractor feeder lets you print on continuous paper from 4 inches (102 mm) to 16 inches (406 mm) wide. You can use the tractor feeder without removing paper from the sheet feeder.

When printing on continuous paper, keep the following in mind:

- When you turn on the printer with paper loaded on the tractor feeder, it reverses the paper to the paper-park position and then advances it to the next page. To keep the loading position accurate, remove any printed sheets before you turn off the printer.

- If the printer runs out of paper during a print job, load paper onto the push tractor and press the Pause button to continue printing.

- If printing appears too high or low on the page, you can use micro adjust mode to adjust the loading position or tear-off position. See "Adjusting the Loading Position" or "Adjusting the Tear-Off Position" later in this chapter. The settings you make remain in effect until you change them again, even if you turn off the printer.

  C ***Caution:***
  Do not use the knob on the left side of the printer to adjust the loading position; this may damage the printer or cause it to lose the top-of-form position.

- If the paper is released from the sprocket pins, never feed paper backward; this may cause a paper jam. Reload the paper by following the instructions in the next section.

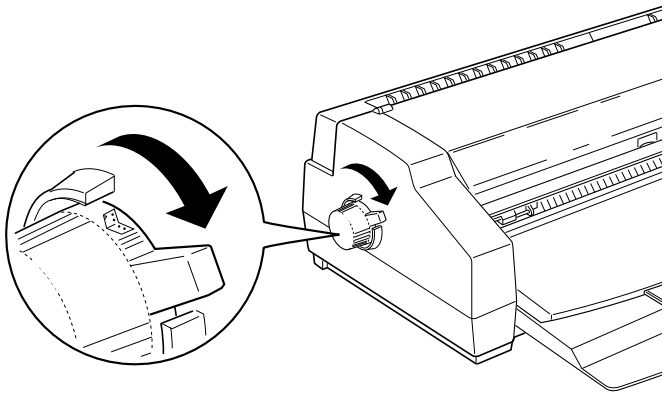
Loading Continuous Paper

Follow these steps to load continuous paper in the printer:

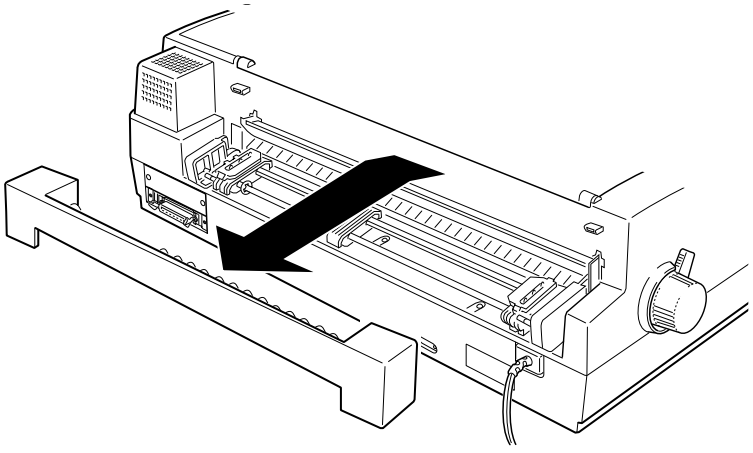
1. Place the supply of continuous paper directly behind the printer so that paper can feed smoothly. Make sure the paper path is not obstructed, and allow enough room for printed pages to be stacked in front of the printer.

2. Move the paper-release lever to the continuous paper position.

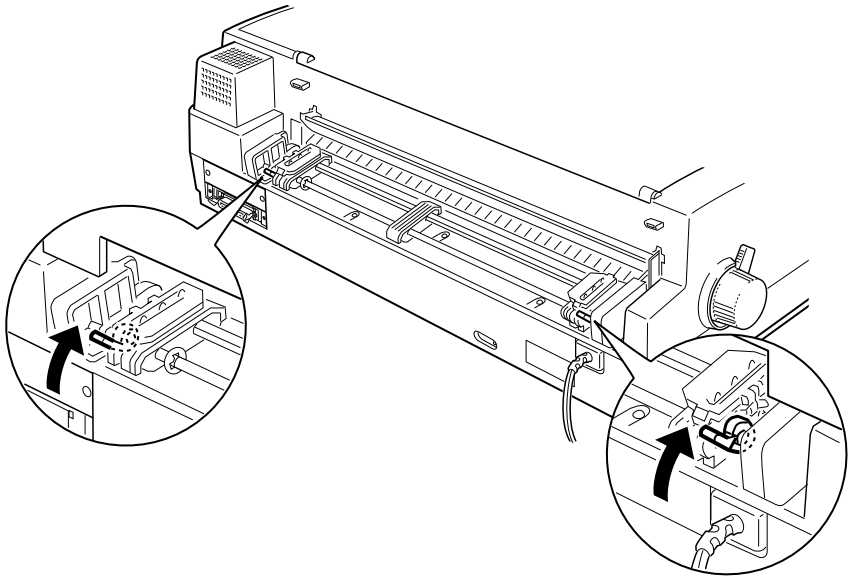
   Note:
   If a single sheet is in the paper path, press the Load/Eject *button to eject it before moving the paper-release lever.*



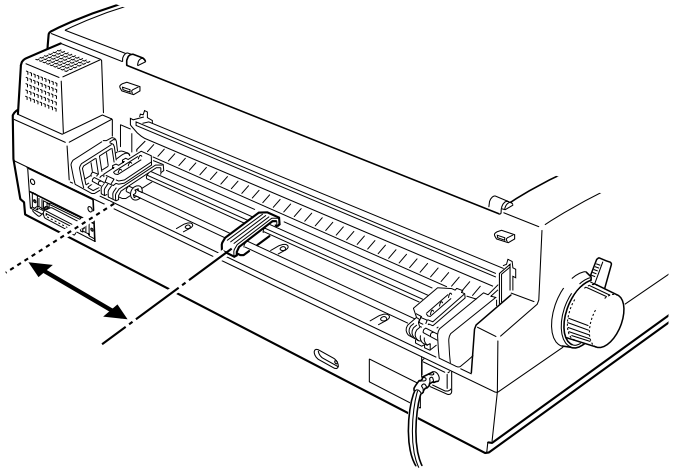
3. Hold the manual feed guide with both hands and gently lift it up and off the printer.



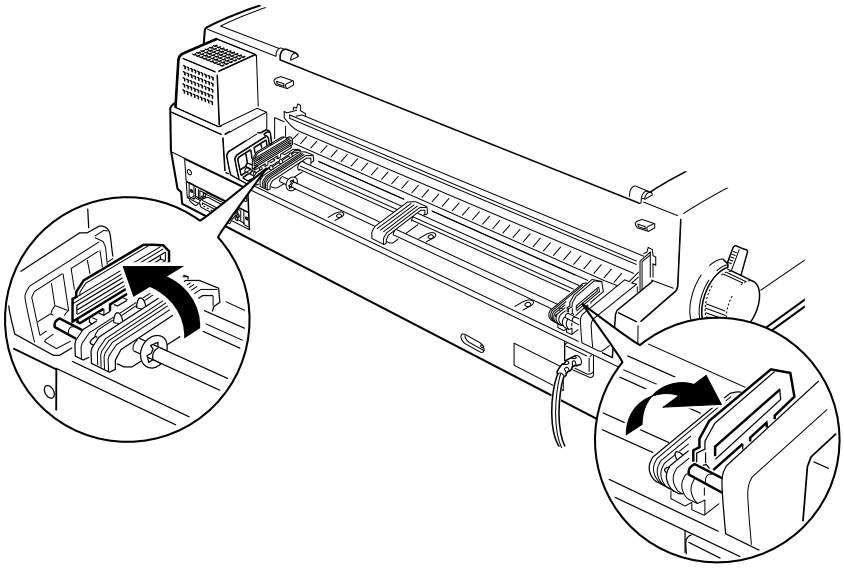
4. Release the sprocket units on the tractor by raising the sprocket-lock levers.



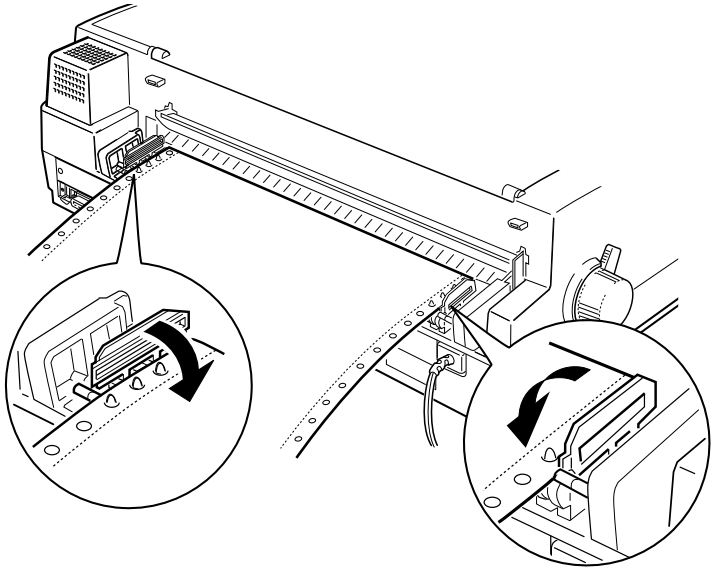
5. Move the sprocket units to match the paper's width; then position the center support midway between the two sprocket units.



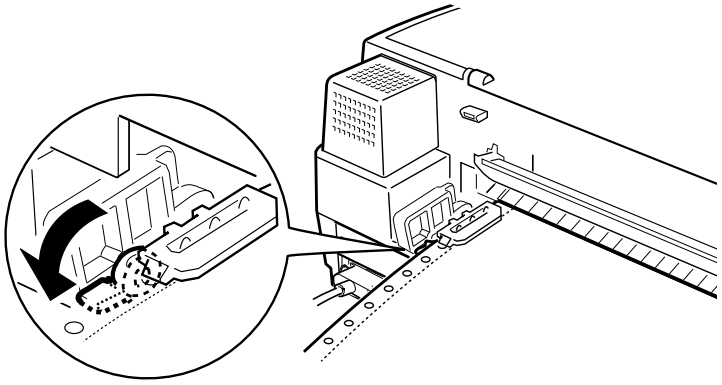
6. Open both sprocket covers.



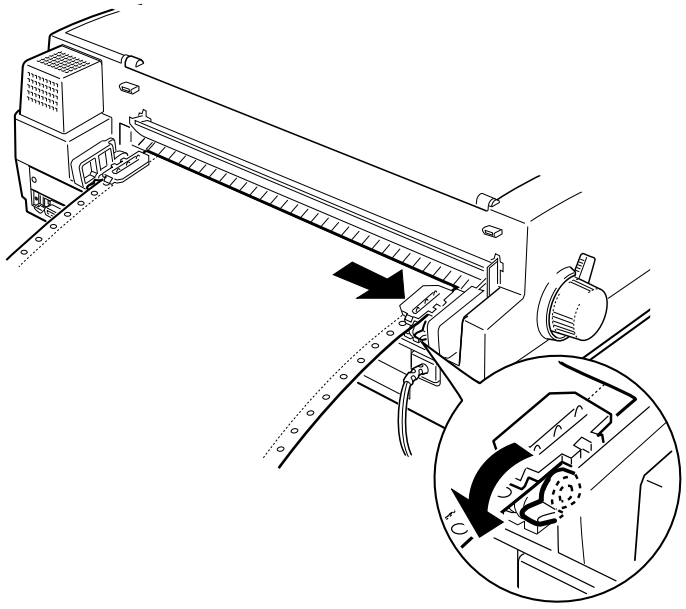
7. Make sure the printable side of the paper is up. Then fit the first four holes of the paper over the sprocket pins and close the sprocket covers.



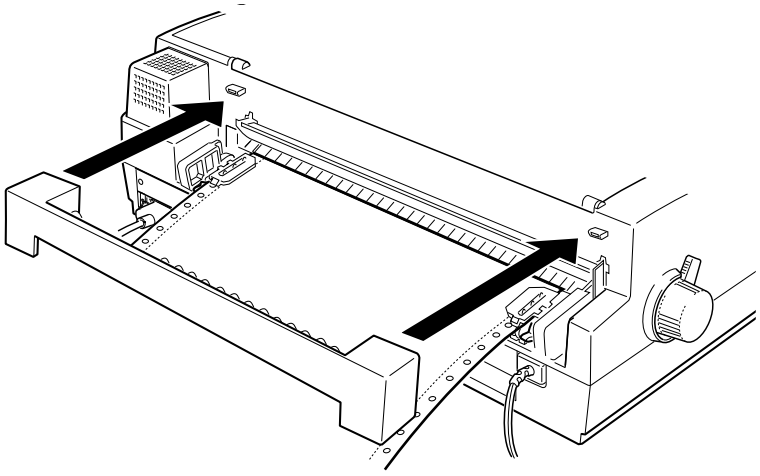
8. Position the left sprocket unit so its right edge is aligned with the arrow mark on the printer. The arrow mark indicates the left edge of the printable area. Then lower the sprocket-lock lever to lock the left sprocket unit.



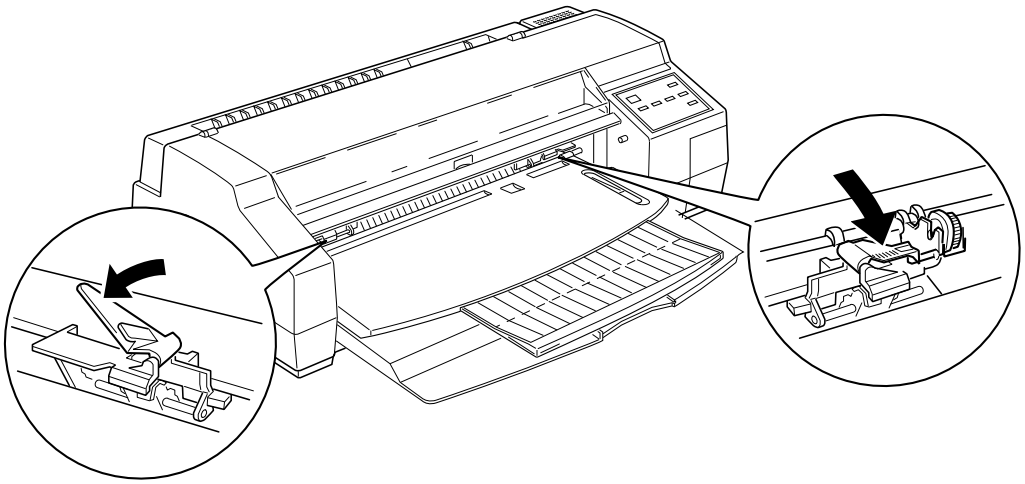
9. Slide the right sprocket unit to remove any slack in the paper. Then lower the sprocket-lock lever into place.



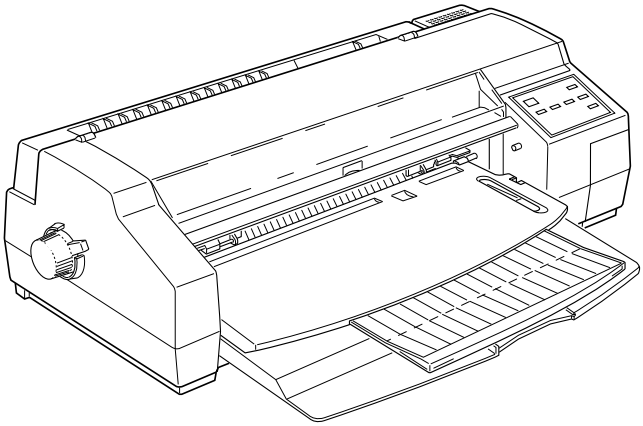
10. Reattach the manual feed guide to the printer. Match the holes of the guide to the pins on both sides of the printer and push until they click into place.



11. Lower both page eject guides.



12. Make sure the rear edge guide of the paper support is pushed under the output tray, as shown below, to prevent a paper jam.



13. When the printer receives data, it advances the continuous paper to the loading position and starts printing.

Removing Continuous Paper

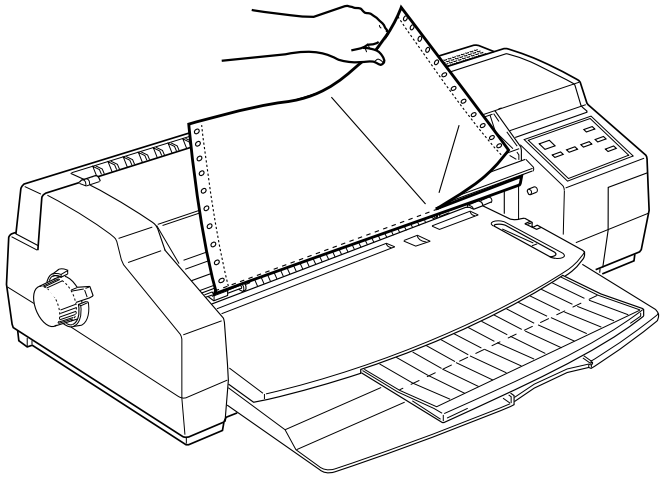
Follow these steps to remove continuous paper from the printer:

1. After you have finished printing a page of continuous paper, press the Load/Eject button. The printer advances the paper to the tear-off position.

   Note:
   If the auto tear-off feature is on, you can skip step 1 because the printer advances the paper perforation to the tear-off position automatically.

2. Tear off the printed pages.

3. Press the Load/Eject button. The printer feeds the continuous paper backward to the paper-park position.



Note:
If you are using continuous labels, see "Removing continuous labels" on page 1-19.

Adjusting the Loading Position

The loading position determines where the printer positions the top edge of the paper when loading it. If printing is too high or low on the page, change the loading position in micro adjust mode.

You can set a separate loading position for continuous paper or for paper loaded in the sheet feeder or the manual feed slot.

C ***Caution:***
Do not use the knob on the left side of the printer to adjust the loading position; this may damage the printer or cause it to lose the top-of-form position.

1. Make sure the printer is turned on.

2. Press the LF/FF button to load a sheet of paper to the top-of-form position.

3. Hold down the Pause button for about three seconds. Both of the font lights begin to flash.

4. Press the Micro Adjust D button to feed paper forward, or press Micro Adjust U to feed paper backward. (Press either button as many times as necessary until you reach the desired position.)

5. To complete the adjustment, press the Pause button. The new loading position is stored in the printer's memory.

6. Send data from the computer to start printing.

Note:
Your setting remains in effect until you change it again, even if you turn off the printer.

The printer has a minimum and maximum loading position, beyond which the paper stops moving.

Adjusting the Tear-Off Position

When you press the Load/Eject button after you have finished printing a page of continuous paper, you may find that the perforation is not aligned with the tear-off edge. You can use micro adjust mode to adjust paper to the tear-off edge. When you resume printing, the printer feeds paper back to the loading position.

C ***Caution:***
Never use the tear-off feature with labels. When fed backward, labels may come off the backing and jam the printer. When you use labels, always turn the auto tear-off setting off using the Default Setting mode.

Do not use the knob on the left side of the printer to adjust the tear-off position; this may damage the printer or cause it to lose the top-of-form position.

Note:
To use the tear-off feature, turn on auto tear-off using the Default Setting mode as described in Chapter 2.

The setting you make remains in effect until you change it again, even if you turn off the printer.

To adjust the tear-off position, follow these steps:

1. Make sure the printer is on and the paper is in the current tear-off position.

2. Hold down the Pause button for about three seconds. Both font lights begin flashing.

3. Press the Micro Adjust D button to feed paper forward, or press Micro Adjust U to feed paper backward. (Press either button as many times as necessary until you reach the desired position.)

4. To save the adjustment, press the Pause button.

5. Tear off any printed pages.

Note:
The printer has a minimum and maximum tear-off position, beyond which the paper stops moving.

Switching Between Continuous Paper and Single Sheets

When using the tractor feeder, you can easily switch between single-sheet and continuous printing without removing either type of paper.

Switching to Single Sheets

To switch from continuous paper to single sheets, follow these steps:

1. If any printed sheets remain in the printer, tear off the printed pages.

2. Press the Load/Eject button. The printer feeds the continuous paper backward to the paper-park position.

   C ***Caution:***
   Always tear off paper before back-feeding; back-feeding too many sheets can cause a paper jam.

   Never back-feed labels. Labels can easily come off their backing and jam the printer.

3. Move the paper-release lever to the single-sheet position.

   Note:
   If the Data *and* Paper Out *lights flash, you may have moved the paper-release lever before feeding the paper backward to the paper-park position. Lower the paper-release lever to the continuous-paper position and press the* Load/Eject *button; then raise the paper-release lever to the single-sheet position.*

4. Change the driver settings to match your paper source, size, and type.

5. The printer is ready to print. When it receives data, it loads a single sheet from the sheet feeder or manual feed slot.

   Note:
   The paper eject guides raise automatically when a single sheet is loaded from the sheet feeder.

Switching to Continuous Paper

To switch from single sheets back to continuous paper, follow the steps below:

1. If a single sheet is in the paper path, press the Load/Eject button to eject it.

2. Raise the paper-release lever to the continuous-paper position.

   Note:
   If the Data *and* Paper Out *lights flash, you may have moved the paper-release lever before ejecting a sheet of paper. Raise the paper-release lever to the single-sheet position and press the* Load/Eject *button; then lower the paper-release lever to the continuous-paper position.*

3. Lower the page eject guides.

4. Change the driver settings to match your paper source, size, and type.

5. The printer is ready to print. When it receives data, it loads continuous paper from the tractor feeder and begins to print.

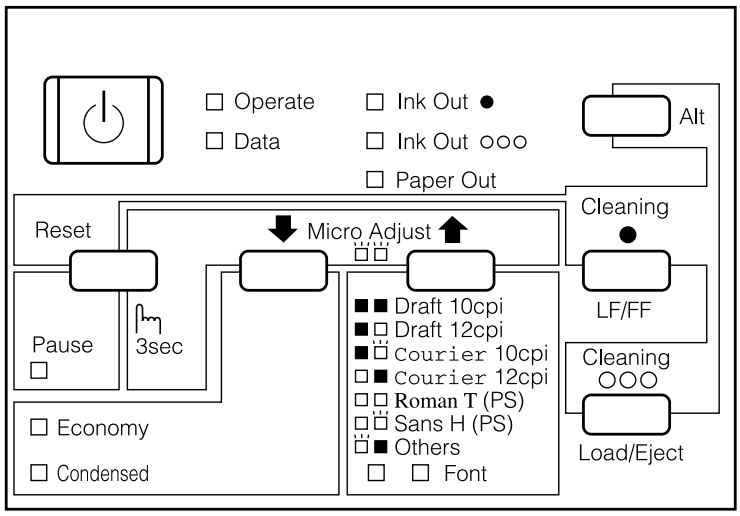
Chapter 2

Controlling the Printer

This chapter explains how to control the printer using the control panel. It also describes the additional printer functions you can perform using the Default Setting mode.

Using the Control Panel

The printer's control panel contains lights for displaying the printer status and buttons for controlling certain functions, as described in this section.



Since most printer settings can be controlled from your software, you do not often need to use the control panel. Normally you need to use it only to do the following:

- ❑ Turn on economy or condensed mode
- ❑ Clean the black or color print heads
- ❑ Replace the ink cartridges

- ❑ Pause the printer temporarily
- ❑ Reset the printer.

Lights

See page 4-1 for information on using the lights to aid in troubleshooting.

Operate	On when the printer is on.
Data	On when data remains in printer memory or when printing a self test or demonstration page. Flashes when data is being received by the printer.
Ink Out 0	On when the black ink cartridge is empty or not installed. The printer will not work if the black ink cartridge is empty or not installed. Flashes when the black ink cartridge is low on ink.
Ink Out NNN	On when the color ink cartridge is empty. Flashes when the color ink cartridge is low on ink. If the color print head is not installed, this light is always off. If color ink runs out while you're printing, the printer stops. You can continue to print with the black ink cartridge by switching to monochrome printing. To do this, turn off the printer, turn it on again, and resend your print job.
Paper Out	On when the printer runs out of paper. Flashes rapidly if there is a paper jam.
Pause	On when printing is paused and flashes while the ink cartridge is being replaced or during print head cleaning.

Economy — On when economy printing mode is selected. In economy mode the printer uses less ink by printing fewer dots per character. Note that black may print as gray. Use this mode for rough drafts of text only.

Condensed — On when condensed mode is selected. In this mode, the printer prints selected fonts at 60% of their width so that more characters can fit on a page.

Font — Indicates which font is selected. Use the Default Setting mode to select fonts other than those displayed on the control panel. Both lights flash when the printer is in micro adjust mode.

Buttons

In addition to the button functions explained below, you can perform additional functions using certain button combinations and power-on sequences, as described on page 2-4.

Alt — Hold down this button for about five seconds to move the carriage to the color ink cartridge replacement position. The Pause light begins flashing. Press the Alt button again to return the carriage to its home position. See “Replacing the Color Ink Cartridge” in Chapter 3.

This button is also used in combination with other buttons to reset the printer or clean the print heads; see the next section for more information.

Pause (or Reset) — Stops printing temporarily. Press it again to resume. Hold down this button for about three seconds to enter micro adjust mode.

Economy/Condensed (or Cleaning 0)

Selects economy or condensed mode as indicated by the Economy and Condensed lights. Use this button only if you print from a DOS application.

LF/FF

Press this button briefly to feed paper line by line. Hold it down to load a single sheet or to advance continuous paper to the next top-of-form position.

Font

Press this button until the combination of lights indicates the font of your choice. Use this button only if you print from a DOS application.

Micro Adjust D/Micro Adjust U

Adjusts the loading position or tear-off position for continuous paper while in micro adjust mode. Press the Micro Adjust D button to advance paper forward or press Micro Adjust U to feed paper backward. To enter micro adjust mode, hold down the Pause button for about three seconds. Both Font lights begin to flash. To exit micro adjust mode, press Pause again. The settings made in this mode are saved in the printer's memory.

Load/Eject

Loads or ejects a sheet of paper. The printer normally loads and ejects paper automatically. When using continuous paper, press this button to feed paper backward to the paper-park position.

Button combinations and power-on functions

The button combinations below perform additional functions to control your printer.

Alt + Pause (Reset)

Clears the printer's buffer and resets the printer settings to their factory defaults.

Alt + LF/FF (Cleaning 0)

Cleans the black print head; see "Cleaning the Print Heads" in Chapter 3 for more information.

Alt + Load/Eject (Cleaning NNN)

Cleans the color print head; see "Cleaning the Print Heads" in Chapter 3 for more information.

Pause + Operate button (Printer adjustment mode)

Enters printer adjustment mode and prints a multilingual instruction sheet on calibrating the printer. (Paper must be loaded in the printer.) Hold both buttons until the font lights flash. Use this mode only if you are printing from DOS applications. To exit printer adjustment mode, press the Pause button and turn off the printer.

Note:
When using the following Operate *button combinations, wait until the* Data *light flashes or paper is loaded before releasing the buttons.*

Load/Eject + Operate button (LQ self test)

Checks the paper length and performs a printer self test at 360 dpi; see "Testing the Printer" in Chapter 1 of your *Setup and Software Guide* for more information.

LF/FF + Operate button (Draft self test)

Checks the paper length and performs a printer self test at 180 dpi; see "Testing the Printer" in Chapter 1 of your *Setup and Software Guide* for more information.

LF/FF + Load/Eject + Operate button (Hex dump)

When connected to a PC, prints a page containing a hexadecimal representation of the data sent to the printer (hex dump) for troubleshooting use; see page 4-11. To exit hex dump mode, press the Pause button and turn off the printer.

Alt + Operate button (Demonstration page)

Prints a demonstration page of the printer's fonts and colors. (Paper must be loaded in the printer.) To exit demonstration mode, make sure the Pause light is on and then turn off the printer.

Note:
If the printer is in economy mode when a demonstration page is printed, black will print as gray.

Economy/Condensed + Operate button (Default Setting mode)

Enters the printer's Default Setting mode; see the next section for more information. To exit Default Setting mode, press the Pause button and turn off the printer.

Alt + Pause + Operate button (Ink smear prevention mode)

Decreases the printing speed to allow more time for the ink to dry. Use this function when your output is smeared. This mode is not saved as a default setting.

Using the Default Setting Mode

Additional printer functions are available through the Default Setting mode. Because the printer's factory defaults are designed to meet the needs of almost all users, you rarely need to change the printer functions. If necessary, however, you can turn on the Default Setting mode and change the settings using the control panel buttons.

To turn on Default Setting mode and print instructions, turn off the printer. Make sure there is paper loaded in the printer. Then hold down the Economy/Condensed button while you turn the printer back on. Follow the instructions the printer prints to change the default settings by pressing the buttons on the control panel. When you are finished, press Pause and turn off the printer to exit Default Setting mode.

The printer functions are shown in the table below and described in the following paragraphs. The default settings are in bold.

Setting	Options
Print direction	**Auto**, Bi-D, Uni-D
Font	Roman, Sans Serif, **Courier**, Prestige, Script, Roman T, Sans Serif H
Pitch	**10 cpi,** 12 cpi, 15 cpi, 17.1 cpi, 20 cpi, Proportional
I/F mode	**Auto**, Parallel, Option
Auto interface wait time	**10 seconds**, 30 seconds
Software	**ESC/P 2**, IBM XL24E
Auto CR*	**Off**, On
AGM*	**Off**, On
Character table	**PC437**, PC850, PC860, PC861, PC863, PC865, Abicomp, BRASCII, Roman 8, ISO Latin 1, Italic
International character set for Italic table	**Italic U.S.A.**, Italic France, Italic Germany, Italic U.K., Italic Denmark 1, Italic Sweden, Italic Italy, Italic Spain I
Auto line feed	**Off**, On
Network I/F mode	**Off**, On
0 slash	**0**, Ø
Page length for continuous paper	**11 inch**, 12 inch, 8.5 inch, 70/6 inch, Others
Skip over perforation	**Off**, On
Auto tear off	**Off**, On

Setting	Options
Print mode	**Plain paper (true black)**, Plain paper (composite black), Exclusive paper, Transparency
Banner paper	**Off**, On

* IBM mode only

Print direction. Specifies how the print head moves across the page. The options are Uni-D, Bi-D, and Auto (default). When Uni-D is on, the print head prints in only one direction to provide the most precise alignment for graphics and text. In Bi-D printing, the print head prints in both directions. Bi-D is faster but the vertical alignment may not be as precise as Uni-D. When Auto is selected, the printer switches automatically between Uni-D and Bi-D as necessary when it receives data.

Font and Pitch. Select the built-in printer font and character pitch used as the default. Normally you use your software to select the font and pitch. The default Font and Pitch are Courier 10 cpi (characters per inch).

Interface mode. Determines from which interface the printer receives print data. The default setting, Auto, allows the printer to automatically switch as needed between the parallel and serial interfaces. However, if you experience communication problems, you might want to set the interface mode to either Parallel or Option. If you select Option, you must have an optional interface card installed. The printer will ignore data from the parallel interface.

Auto interface wait time. Sets the time period for the printer to wait for data from the current interface (and accept no data from the other interface) when you're using the Auto interface mode. You can select a 10-second (default) or 30-second timeout.

Software. Specifies the printer control language to use when printing from DOS: EPSON ESC/P 2 (default) or IBM XL24E. If your software allows you to select EPSON ESC/P 2, choose it for the most advanced fonts and graphics.

Auto CR. Specifies that the printer perform a carriage return and line feed operation if the print positions exceed the right margin of the paper. (Used in IBM XL24E mode only.)

AGM (Alternate Graphics Mode). Specifies that the printer use high-resolution, 24-pin graphics commands. (Used in IBM XL24E mode only.)

Character table. Selects the set of characters and symbols that can be printed. The default is the Italic U.S.A. character table. If you commonly use a language containing accents, symbols, or other characters not available in the Italic U.S.A. character table, change to a different character table. For a list of the character tables, see Appendix C.

Auto line feed. Specifies that a carriage return character encountered in the print file be accompanied by a line feed command. By default, auto line feed is off. If text lines print on top of one another, turn on auto line feed.

Network interface mode. If you're having trouble printing when the printer is connected to multiple computers, turn on network interface mode. By default, network interface mode is off.

0 Slash. Specifies whether the printer prints a slashed zero (Ø) or unslashed zero (0). This feature is useful for clearly distinguishing between an uppercase letter O and a zero when printing documents such as programming lists.

Page length for continuous paper. Available only when you use continuous paper with the tractor feeder. You can set the paper length to 11 (default), 12, 8.5, or 70/6 (the length of A4 paper) inches.

Skip over perforation. Selects whether or not the printer skips over the perforations of continuous paper, providing a 1-inch margin between the last line printed on one page and the first line printed on the next. Because most software programs set their own top and bottom margins, use this feature only if your program does not provide them. This feature does not affect single-sheet paper.

Auto tear off. When using continuous paper, advances the paper perforation to the tear-off position where you can easily tear off the printed pages. When the printer receives data, it automatically reverses the paper to the top-of-form position and starts printing, so you can use all of the next sheet.

C ***Caution:***
When you use the tractor to print on labels, set this feature to off. Otherwise labels may come off the backing and jam the printer.

Print mode. Selects the paper type you plan to use. Use this feature to select paper types only when printing from a DOS application. Select Plain paper (true black) when printing text on plain paper. Select Plain paper (composite black) for color images on plain paper or when the black ink in a printed image is blurred. Select Exclusive paper for special coated paper and high-quality glossy paper. Select Transparency when printing on transparencies. When Transparency is selected, printing is unidirectional.

Note:
Composite black is produced by mixing cyan, magenta, and yellow inks.

Banner paper. Specifies that banner paper is not recognized as single-sheet paper even if the paper-release lever is set to the single-sheet position. Paper is not ejected and advanced forward to the next page with the LF/FF button.

Chapter 3

Maintenance

Instructions in this chapter tell you how to do the following to maintain and care for your printer:

- ❑ Clean the print heads
- ❑ Replace the ink cartridges
- ❑ Clean the printer
- ❑ Transport the printer
- ❑ Calibrate the printer when printing from DOS.

Cleaning the Print Heads

The printer periodically cleans its print heads automatically, so normally you should not need to manually activate a cleaning cycle. However, the ink nozzles in the print head may become clogged occasionally reducing the print quality. If this happens, you can run a cleaning cycle to clear the nozzles.

You can clean one or both print heads (if the optional color print head is installed). Each cleaning cycle takes about one minute. During the cleaning cycle, the carriage moves back and forth and you can hear the printer recharging the print heads. The Pause light flashes throughout the cleaning cycle and then stays on when the cycle is finished.

To clean the black print head:

1. Make sure the printer is on and press the Pause button.
2. Hold down the Alt button and press LF/FF. The cleaning cycle begins.
3. Press the Pause button to resume printing.

To clean the color print head:

1. Make sure the printer is turned on and press the Pause button.

2. Hold down the Alt button and press Load/Eject. The cleaning cycle begins.

3. Press the Pause button to resume printing.

It can sometimes take up to three cleaning cycles to improve print quality. To check the print quality, print a demonstration page after running a cleaning cycle. If the print quality does not improve after you clean the print heads three times, and you are sure the cartridges are not low or out of ink (as described in the next section), contact your dealer or authorized EPSON servicer.

Replacing the Ink Cartridges

The printer's Ink Out 0 (black) and Ink Out NNN (color) lights tell you when your ink cartridges are low on ink and when you need to replace them. If one of these lights flashes, the indicated cartridge is low on ink; if it remains on, you need to replace the cartridge.

C ***Caution:***
Do not replace an ink cartridge unless its Ink Out *light tells you to. If you replace a cartridge before its light flashes, the sensor that tells you when ink is out will not work with the new cartridge.*

Leave the old cartridge installed in the printer until you are ready to replace it with a new one. Attempting to print without a cartridge installed can damage the printer.

C ***Caution:***
If you replace a cartridge when the Data *light is on, you must turn off your printer and then turn it back on. This erases the data received by the printer and you must resend your print job.*

Once you install the ink cartridges, do not open the clamp or remove the cartridges except to replace them with new ones. Once you remove a cartridge, you cannot reuse it.

When the color ink cartridge is empty, you can continue printing with the black ink cartridge by switching to monochrome mode. To do this, turn off the printer, then turn it back on and resend your print job.

If the black ink cartridge is empty, you cannot continue printing, even if the color cartridge still contains ink.

Selecting the Correct Ink Cartridges

Use only these EPSON ink cartridges in your Stylus 1500 printer:

Black ink cartridge	S020062
Color ink cartridge	S020049

When you need new ink cartridges, contact your dealer or call EPSON Accessories at (800) 873-7766 (U.S. only). In Canada, call (800) BUY-EPSON for sales locations.

C ***Caution:***
Use only genuine EPSON ink cartridges and do not refill them. Other products may cause damage not covered by EPSON's warranties.

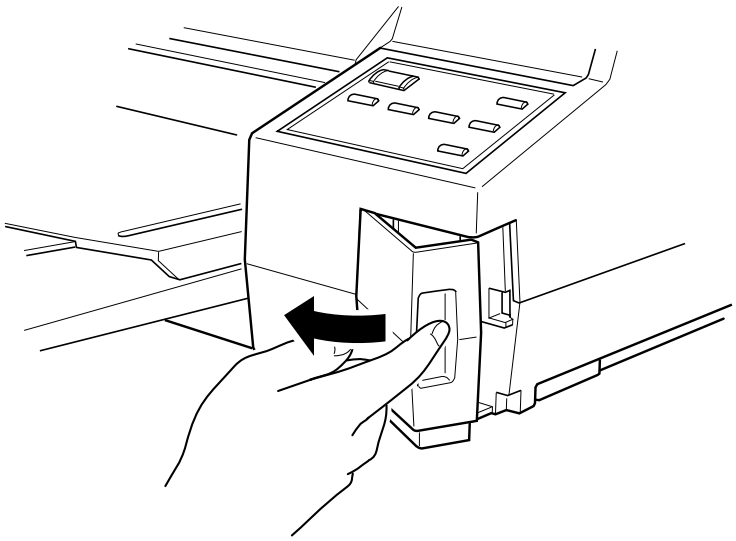
Replacing the Black Ink Cartridge

Follow these steps to remove the empty black ink cartridge and install a new one:

1. Make sure the printer is on.

2. Press the Pause button (check that the Pause light comes on).

3. Remove the ink compartment cover as shown below.

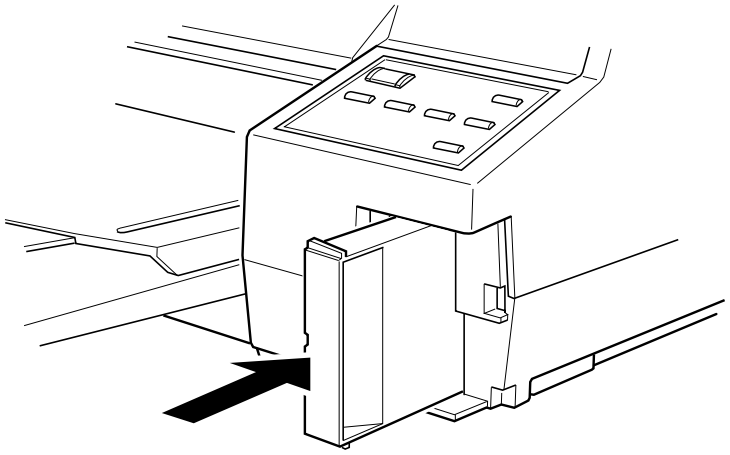


4. Carefully pull the used ink cartridge straight out of the printer and dispose of it so any excess ink does not spill out. Do not take the used cartridge apart or try to refill it.

W ***Warning***:
If ink gets on your hands, wash them thoroughly with soap and water. If ink gets into your eyes, flush them immediately with water.

5. Remove the ink cartridge from its package.

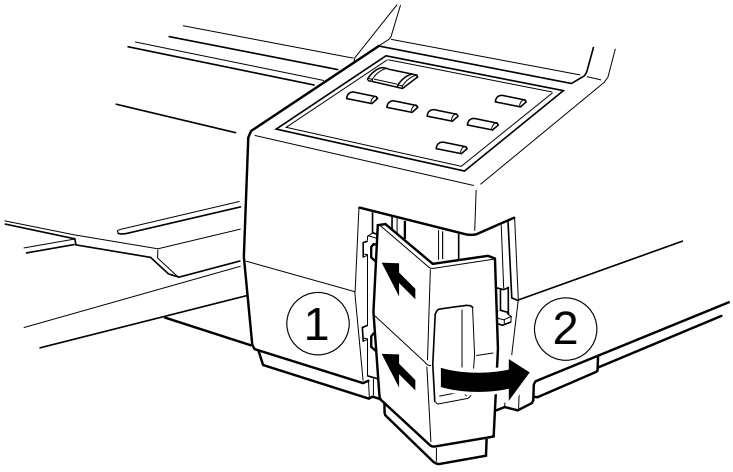
6. Insert the end of the cartridge with the foil plug into the ink compartment following the directions on the cartridge label.



7. Push the cartridge all the way into the compartment until the cartridge meets the back of the ink compartment. Make sure the Ink Out 0 light goes off.

   Note:
   If the Ink Out 0 *light remains on, the ink cartridge may not be installed correctly. Remove the ink cartridge and then reinsert it as described above.*

8. Replace the ink compartment cover.



9. Press the Pause button to resume printing.

10. If you want to check the print quality, print a demonstration page. If you need to initiate a cleaning cycle, see page 3-1.

Replacing the Color Ink Cartridge

Follow these steps to remove the empty color cartridge and install a new one:

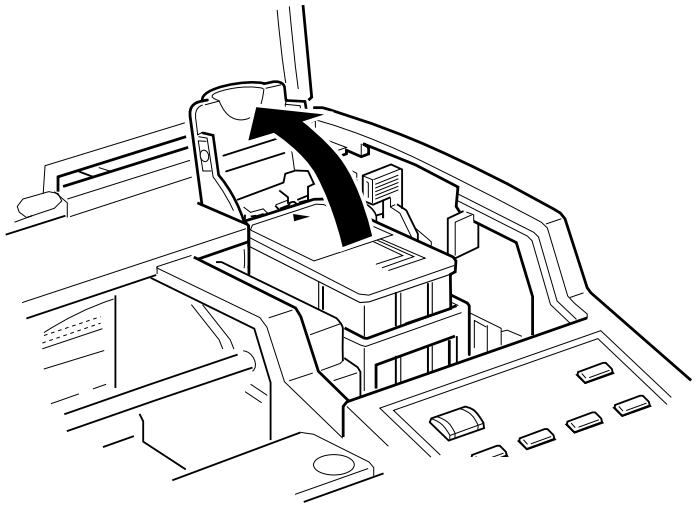
1. Make sure the printer is on.

2. Press the Pause button (check that the Pause light comes on).

3. Open the printer cover using the notch on the cover.

4. Hold down the Alt button for about five seconds until the print head moves slightly left to the ink cartridge install position. The Pause light begins blinking. (The carriage returns to the home position after 30 seconds if the ink cartridge is not removed.)

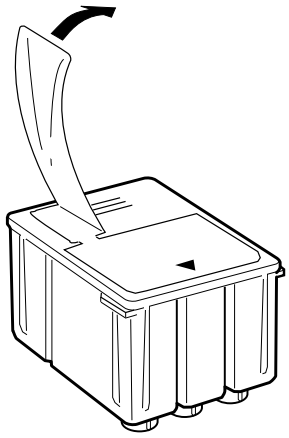
5. Pull up the cartridge clamp to open it. The cartridge rises partially out of the printer.



6. Lift the cartridge out of the printer and dispose of it carefully so any excess ink does not spill out. Do not take the used cartridge apart or try to refill it.

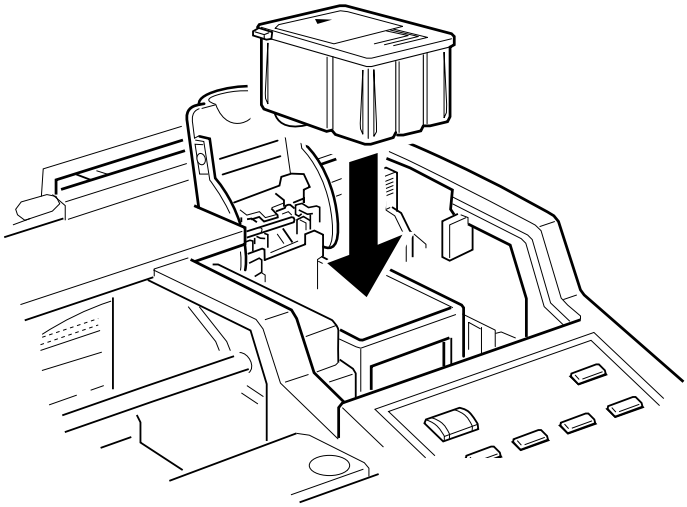
W ***Warning:***
If ink gets on your hands, wash them thoroughly with soap and water. If ink gets into your eyes, flush them immediately with water.

7. Remove the ink cartridge from its protective bag. Remove the tape seal from the top of the cartridge.



C ***Caution:***
Do not remove the tape seal from the bottom of the cartridge; otherwise, ink will leak.

8. Lower the ink cartridge into its holder with the label facing up and the arrow pointing to the back of the printer. Do not push down on the ink cartridge.



9. Press the ink cartridge clamp down until it locks in place. You will feel some resistance.

C ***Caution:***
Once you install the ink cartridge, do not open the clamp or remove the ink cartridge except to replace it with a new one. Otherwise, the print head and cartridge may become unusable.

Once you remove a cartridge, do not reuse it. Reusing a cartridge that has been removed may damage the print head.

10. Press the Alt button again. The Pause light flashes as the printer charges the ink delivery system and moves the carriage to its home (far right) position.

    Even if you don't press Alt, the printer moves the carriage back to its home position about 30 seconds after you install the cartridge.

C ***Caution:***
The Pause *light flashes for about 60 seconds while ink is being charged in the system. Never turn off the printer while the* Pause *light is flashing; this can result in incomplete charging of printer ink.*

11. Close the printer cover. When the charging cycle finishes, the Pause light stops flashing and stays on. Press the Pause button to turn off the light and resume printing.

12. If you want to check the print quality, print a demonstration page. If you need to initiate a cleaning cycle, see page 3-2.

Cleaning the Printer

If you want to clean the printer, follow these steps:

1. Turn off the printer and disconnect any cables connected to it. Be sure to keep the printer cover closed as you clean it.

2. Remove any paper or other media from the sheet feeder and rear tractor.

3. Carefully clean away loose dust and dirt with a soft brush.

4. Clean the exterior with a soft, dampened cloth.

5. To clean ink out of the printer's interior, wipe it gently with a damp cloth.

C ***Caution:***
Never use alcohol or thinner to clean the printer; these chemicals can damage the components and the printer case.

Do not use a hard or abrasive brush; these can scratch the printer surfaces.

Do not allow water to get on the printer mechanism or any electronic components.

Do not touch the gears inside the printer.

Do not spray inside the printer with lubricants or oils; they can damage the printer mechanisms.

Transporting the Printer

If you need to transport your printer, follow these steps:

1. Open the printer cover and make sure that the print heads are locked in the far right position. If they aren't, turn on the printer, wait about 10 seconds, and turn it off. Close the printer cover.

2. Remove the black ink cartridge and store it separately in a plastic bag. See "Replacing the Black Ink Cartridge" earlier in this chapter.

C ***Caution:***
If you installed the optional color print head and ink cartridge, do not remove the color ink cartridge when transporting the printer. Transporting the printer without the color ink cartridge installed can damage the printer.

3. Unplug the power cord from the electrical outlet.

4. Disconnect the interface cable from the printer.

5. Remove any paper from the sheet feeder and rear tractor. Then remove the output tray and paper support.

6. Attach the protective material to the printer. See the Notice Sheet that was packed with the printer.

7. Repack the printer and attachments in the original box.

Be sure to keep the printer flat as you transport it. If you notice problems with your printed output after transporting the printer, clean the print heads as described earlier in this chapter. If the image is misaligned, calibrate the printer as described in your *Setup and Software Guide*, or as described in the following section if you are printing from DOS.

Calibrating the Printer When Printing From DOS

If vertical lines are misaligned when you print from DOS applications, follow these steps to calibrate the printer using its adjustment mode:

1. Make sure Plain paper (true black) is the default print mode. See "Using the Default Setting Mode" in Chapter 2 for instructions.

2. Make sure paper is loaded in the printer and turn it off.

3. Hold down the Pause button and turn on the printer to enter printer adjustment mode. It prints a multilingual instruction sheet.

4. Follow the instructions on the sheet to calibrate your printer.

5. When you are finished, press Pause and turn off the printer to exit printer adjustment mode.

When you turn on the printer and send your next print job, the lines should be aligned.

Chapter 4

Troubleshooting

This chapter offers solutions to problems you may encounter with printing. It is divided into three sections:

- ❑ Print quality problems. See this section if the print quality is not good or not what you expect.
- ❑ Problems with printing. See this section if your printer is not printing.
- ❑ Paper handling problems. See this section if you have paper jams or other problems with paper handling.

If you have a printing problem, check the appropriate section and follow all suggestions that apply to your problem. Also check the ReadMe icon in the Windows EPSON group or the README1st icon on your Macintosh hard disk for the latest information. If none of the suggested solutions solve your problem, call (800) 922-8911 in the U.S. and Canada.

Error Lights

Certain problems are identified by the control panel lights. The following table describes the meaning of each light pattern and provides a solution to the problem.

Light(s)	Problem	Solution
Paper Out is on	Printer is out of paper	Load paper in the sheet feeder, rear tractor, or manual feed slot; then press the Pause button to resume printing.
	Paper-release lever is in the wrong position	Move the paper-release lever to the position that matches the paper loaded in the printer.

Light(s)	Problem	Solution
Paper Out is flashing	Paper jam	Clear the paper jam.
Ink Out 0 or Ink Out NNN is on or flashing	Ink cartridge is low on ink or empty	Replace the indicated cartridge.
Data and Paper Out are flashing	Paper-release lever was moved before paper was ejected	For continuous paper: lower the paper-release lever and press the Load/Eject button; then raise the paper release lever to the single-sheet position. For single sheets: raise the paper-release lever; press the Load/Eject button; then lower the paper-release lever to the continuous paper position.
Data and Pause are flashing	Carriage error	Turn the printer off, check for and clear any carriage obstructions (paper, etc.), and turn the printer back on. If the error persists, contact your dealer or an authorized service provider.
All lights are flashing	Fatal error	Turn the printer off and then on again. If this does not correct the problem, you can reset the printer's factory defaults by pressing the Alt and Pause buttons. (Note that this will remove any changes you made to the printer's default settings.) If resetting the printer does not fix the problem, contact your dealer or an authorized service provider.

Print Quality Problems

Most print quality problems can often be solved by cleaning the print heads as described in Chapter 3. After cleaning the print heads, print a demonstration page to check the print quality. Note that it may take as many as three cleaning cycles to solve a print quality problem.

If cleaning the print heads does not improve the print quality, try the following:

- ❑ Check the status of the Ink Out 0 and Ink Out NNN lights to see whether the ink cartridges are low on ink. If so, replace the cartridges as described in Chapter 3.

- ❑ For color or complex grayscale images, turn on MicroWeave and turn off High Speed mode.

- ❑ Use a higher quality paper. For best print quality, use EPSON special coated papers for 360 and 720 dpi or EPSON high-quality glossy paper (720 dpi only).

  Note:
  Do not use high-quality glossy paper when you print at 360 dpi.

- ❑ Make sure the Media Type setting matches the type of paper or other media loaded in the printer.

- ❑ If you're printing a scanned image and the colors are not right, first try to fix the problem using your scanning software program.

If print quality does not improve, see the following specific problems.

Printed output is faint, blurred, or of poor quality.

You may not be printing on the correct side of the paper. Test both sides to determine which side gives you the best print quality. On coated paper, print only on the white coated side; on glossy paper or transparencies, print only with the cut corner facing the right side of the sheet feeder; remove each sheet as it is printed to prevent smearing by the next sheet.

Check that the thickness adjustment lever is set correctly for the media type. (See "Setting the Thickness Adjustment Lever" in Chapter 1 for more information.) Faint or blurred printouts can result if you print on plain paper with this lever in the incorrect position.

Use a higher quality paper. If you are using 720-dpi resolution, you get better results when you use EPSON special coated paper for 720 dpi or EPSON high-quality glossy paper.

Check whether economy printing mode is on. To turn off this mode, press the Economy/Condensed button until the Economy light goes off.

Check whether your paper is moist or damp. Ink jet printers are sensitive to moisture absorbed by paper. Do not store paper in damp or humid places.

Check the printer settings within your software program.

If you are printing color graphics at 360 or 720 dpi, make sure MicroWeave is on and High Speed mode is off. Also, be sure that the Brightness and Contrast settings (Windows driver) or Light/Dark setting (Macintosh driver) are appropriate for the image.

Try using the printer driver's Automatic feature to let the driver determine the appropriate image settings.

If you are using a DOS application and the black ink in the image is blurred, select Plain paper (composite black) using the Default Setting mode, as described in Chapter 2, and start the print job again.

Your Windows video driver may not be compatible with the printer. Use the standard Windows VGA driver or contact the manufacturer of your video card for an updated driver. For information on changing the video driver, see your Windows documentation.

Clean one or both print heads as described in Chapter 3.

Replace one or both ink cartridges.

Printed image is smeared.

Change the thickness adjustment lever setting to the + position regardless of the paper type.

Decrease the printing speed to allow time for the ink to dry. See “Button combinations and power-on functions” in Chapter 2 for more information.

The print head nozzles may need cleaning. Clean one or both print heads; then check the print quality by printing a demonstration page. Repeat the cleaning up to three times. If images continue to smear, contact your dealer or an authorized EPSON servicer.

Vertical or horizontal lines do not align.

Calibrate your printer as described in your *Setup and Software Guide*. If you are printing from DOS, see the instructions in Chapter 3.

You see white banding in your printouts.

Turn on MicroWeave in the printer driver.

If you still see white banding, clean the print heads as described in Chapter 3.

The printout contains incorrect or garbled characters.

Make sure EPSON Stylus 1500 is selected as the default Windows printer driver (Windows driver) or is the last printer selected in the Chooser (Macintosh driver).

If you are running Windows, make sure the Print Manager is turned off in the Control Panel Printers utility; see your Windows documentation or online help for instructions.

Print jobs may be held in the EPSON Spool Manager (Windows version) or the EPSON Monitor2 (Macintosh version) utility. Select any print jobs marked pending, waiting, or held; then select Delete or Cancel Printing.

If you still see incorrect or garbled characters, try printing a demonstration page to see if the problem is with your printer; see Chapter 2 for instructions. If the demonstration page prints, you may have a problem with your application software or your printer cable. Make sure your cable is connected securely and see your program's documentation for troubleshooting information. If no demonstration page prints, you may have a problem with your printer; contact your EPSON dealer or an authorized EPSON servicer.

You see incorrect colors in your printout.

Make sure EPSON Stylus 1500 is selected as the default Windows printer driver (Windows driver) or is the last printer selected in the Chooser (Macintosh driver).

Check that the printer driver's Brightness and Contrast settings (Windows driver) or Light/Dark setting (Macintosh driver) are appropriate for the image.

If you scanned the image, the different color interpretation technologies used by your scanner, monitor, and printer can never produce an exact color match with the original image. However, check your scanner documentation for utilities you can use to calibrate your scanner to your monitor and printer to more closely match colors.

If you are printing from a DOS application using Economy mode, black text or graphics will appear gray on your printout; turn off Economy mode to achieve deeper blacks.

Printing Problems

If you cannot get the printer to print, first check that paper is loaded in the printer. Then check that the printer is plugged into a working electrical outlet that is not controlled by a switch or timer. Verify that the interface cable is securely connected to the printer and computer. If all this is correct, see the following specific problems.

Printing has stopped but the Pause *light is off.*

One or both ink cartridges may be empty or too old. A cartridge is too old if it has been used longer than six months or beyond the date on its packaging. First clean the print heads as described in Chapter 3. If this does not solve the problem, replace the ink cartridge(s).

C ***Caution:***
If you replace an ink cartridge before its Ink Out *light flashes, the sensor that tells you when the ink is out will not work with the new cartridge.*

Make sure both ends of the interface cable are plugged in securely.

The cable between the printer and computer might not meet the specifications for the printer or computer.

Turn off the printer and perform a self test as described in Chapter 1 of your *Setup and Software Guide*. If the self test does not print, the problem is with the printer. If the self test prints correctly, the problem is probably caused by your software.

You see a system memory error message on your PC and the printer does not print.

The Copies options in the Windows printer driver require additional system memory. If you see an error message or are unable to print using these options, try closing any unnecessary applications, reducing the size of your print job, turning off the Copies options, or increasing system memory.

The printer sounds like it is printing, but nothing prints.

The print heads may need cleaning. See "Cleaning the Print Heads" in Chapter 3 for instructions.

One or both ink cartridges are empty or too old. A cartridge is too old if it has been used longer than six months or beyond the date on its packaging. First clean the print heads as described in Chapter 3. If this does not solve the problem, replace the ink cartridge(s).

The printer prints blank pages.

Make sure EPSON Stylus 1500 is selected as the default Windows printer driver (Windows driver) or is the last printer selected in the Chooser (Macintosh driver).

Make sure you selected the correct Paper Size option in the printer driver; see your *Setup and Software Guide* for instructions. Also make sure the margins you selected in your application software fit the paper size you're using.

Text printing is slow.

You may be using printer driver settings that are more suitable for graphics printing and unnecessarily slowing down printing. To speed up text printing only, turn off MicroWeave mode and turn on High Speed mode. Some combinations of Printing Mode (resolution) and Media Type do not allow you to select these settings; if this is the case for your settings, select a lower resolution, possibly using 180 dpi for drafts and 360 dpi for your final output. However, do not turn off MicroWeave when printing final copies of high-quality graphics or photographs.

If you're printing text from DOS applications and you selected composite black mode using the Control Panel Print Mode buttons, text printing will be much slower than true black printing. Select true black mode instead; see Chapter 2 for Control Panel instructions.

You see error messages on your PC because of printing conflicts.

Before sending print jobs to the printer, the EPSON Spool Manager stores them in a temporary directory. If you have trouble printing because of other temporary files or directories, change the EPSON Spool Manager default directory. Follow these steps:

1. Make a directory on your hard disk to store the Spool Manager files, for example, C:\SPLTEMP.

2. Open the EPSON program group and double-click the Spool Manager icon.

3. Make sure EPSON Stylus 1500 is selected, and then open the Queue menu.

4. Select Setup. In the Queue Setup dialog box, change the spool directory to the one you created in step 1. Then select OK.

5. Open the Options menu.

6. Select Default Spool Directory. In the Default Spool Directory window, select the spool directory you created in step 1. Then select OK.

7. Close the Spool Manager.

The printer does not seem to receive print jobs.

On a PC, release any print jobs that may be held in the EPSON Spool Manager. Open the Spool Manager and click any job marked pending or held. Then open the Document menu and select Delete. To verify that the EPSON Stylus 1500 print queue is not held, open the Queue menu. If there is a checkmark next to Hold, click on Hold to take the printer off hold.

On a Macintosh, release any print jobs that may be held in the EPSON Monitor2 utility. Click the upper right corner of the screen and select Monitor2 from the menu. Click any print job shown under Waiting and click Cancel Printing.

Make sure EPSON Stylus 1500 is selected as the default Windows printer driver (Windows driver) or is the last printer selected in the Chooser (Macintosh driver).

If you still get no output, try printing a demonstration page to see if the problem is with your printer; see Chapter 2 for instructions. If no demonstration page prints, you may have a problem with your printer; contact your EPSON dealer or an authorized EPSON servicer.

If the demonstration page prints, you may have a problem with your application software or your printer cable. Make sure your cable is connected securely and see your program's documentation for troubleshooting information. If you are an experienced PC user, you can use the printer's hex dump mode to pinpoint communication problems between the printer and a software program. To turn on hex dump mode, first turn off the printer. Then hold down the LF/FF and Load/Eject buttons, turn on the printer, and send a print job. The printer prints the exact codes it receives from the computer in hexadecimal format. Report the codes to your support technician.

Paper Handling Problems

This section describes how to prevent paper jams and ensure that paper feeds properly.

Paper Jam Problems

If paper jams inside the printer frequently, try the following:

- ❑ Use a higher quality paper that is suitable for ink jet printers and is not too thin, too thick, or rough. For best quality, use EPSON special coated and high-quality glossy papers. See Appendix B for paper specifications.
- ❑ Fan the stack of paper before you load it.
- ❑ If you loaded plain paper, try turning the stack over. The printable side may have been facing down.
- ❑ Do not load too many sheets in the sheet feeder. You can load up to 100 sheets of plain paper, 70 sheets of special coated paper, 10 envelopes, 50 sheets of transparency film, or 30 sheets of high-quality glossy paper.

Paper Feeding Problems

If paper does not feed properly, the most likely causes are:

- ❑ Paper is curled or folded. Use flat, undamaged paper.
- ❑ The paper is of poor quality; use a better quality paper.
- ❑ The paper is too thin or thick; see Appendix B for paper size and type specifications.

- ❑ The paper was exposed to excess humidity, over 60%. See Appendix B for specifications on required environmental conditions.

- ❑ The left edge guide is too tight or too loose; adjust it for the size of the paper.

- ❑ The thickness adjustment lever is set incorrectly for the media; see "Setting the Thickness Adjustment Lever" in Chapter 1.

- ❑ Continuous paper may be in the paper path when you print from the sheet feeder. Remove the continuous paper.

- ❑ The paper-release lever is set to the wrong position; see "Switching Between Continuous Paper and Single Sheets" in Chapter 1.

- ❑ Too many sheets are loaded in the sheet feeder. You can load up to 100 sheets of plain paper, 70 sheets of special coated paper, 10 envelopes, 50 sheets of transparency film, or 30 sheets of high-quality glossy paper.

- ❑ When printing on oversized paper, make sure the paper is not obstructed by the output tray.

Continuous Paper Problems

See this section for solutions to problems with continuous paper.

Regular gaps occur in continuous paper printout.

Skip-over-perforation may be on. Set skip-over-perforation to off. See "Using the Default Setting Mode" in Chapter 2.

The perforation of continuous paper is not aligned with the tear-off position.

Adjust the tear-off position using the Micro Adjust button in micro adjust mode. See “Adjusting the Tear-off Position” in Chapter 1.

The auto tear-off setting may be on. Turn this setting off. See “Using the Default Setting Mode” in Chapter 2.

Make sure that the page length setting for continuous paper is correct in the Default Setting mode. If not, change the setting. See “Using the Default Setting Mode” in Chapter 2.

The tractor does not feed continuous paper.

The paper-release lever may be set to the wrong position. Move the paper-release lever to the continuous-paper position.

The paper has come off the tractor feeder. Reattach the paper to the tractor.

Continuous paper feeding is crooked or the paper jams.

Make sure the paper supply is not obstructed by a cable or some other object.

Make sure that your paper supply is positioned within 3 feet (1 meter) of the printer.

Check that the holes on the sides of the paper are aligned with each other. Also, make sure the sprocket units are locked and their covers are closed.

Check that the paper size and thickness is within the specified range. See Appendix B.

There may be some slack in the paper. Adjust the position of the sprocket units.

The continuous paper does not eject properly.

The page is too long. Tear off the last printed page and press the Load/Eject button to feed the paper backward. However, if you are printing on labels, tear off the paper entering the printer, then press the LF/FF button to feed paper forward.

Use paper that is within the specified length. See Appendix B.

Change the page length setting for continuous paper. See "Using the Default Setting Mode" in Chapter 2.

The paper is jammed inside the printer. Be sure you remove all of the paper.

C ***Caution:***
Use the knob on the left side of the printer only to clear paper jams and only when the printer is off. Otherwise, you may damage the printer or change the top-of-form position.

Other Paper Handling Problems

If you still have paper handling problems, see the following suggestions.

The printer loads more than one sheet at a time.

Remove the stack of paper and fan it. Tap it on a flat surface to even the edges. Then reload the paper.

The paper is too thin or thick, or was exposed to excess humidity; see Appendix B for exact specifications.

Make sure the thickness adjustment lever is set correctly for your media type; see Chapter 1 for instructions.

Make sure the printer driver's Copies setting and the copies setting in your application software are set to print one copy at a time. Also verify that you have selected the correct paper size in the driver and in your application software.

Ejected paper is wrinkled.

The paper is too thin or damp. Do not store paper in damp or humid places.

Single-sheet paper does not fully eject.

Use the Load/Eject button to eject the page.

Make sure the banner paper setting is off. See "Using the Default Setting Mode" in Chapter 2.

If you are loading paper from the manual feed slot, make sure that the paper eject guides are lowered. See "Loading Single Sheets Manually" in Chapter 1.

The paper is too long. Use paper that is within the specified size. See Appendix B for exact specifications.

Paper is feeding crooked.

The paper is old or creased. Use only new, smooth sheets of paper.

Too much paper is loaded in the sheet feeder. Remove a few sheets.

The paper is not the proper size and quality; see Appendix B for exact specifications.

Other Problems

Printing starts too high or too low on the page, or the page length or margins are not what you expect.

Make sure you selected the correct Paper Size option in the printer driver; see your *Setup and Software Guide* for instructions.

Use your software program to adjust the margins, or change the number of lines per page, or change the page length setting to match the paper you are using.

Adjust the loading position using micro adjust mode.

Ink cartridges do not last as long as expected.

The ink cartridge life depends on the amount of ink used in printing. If you often print pages with large graphics and dense text with little white space, you will use up cartridges faster than if you print pages with lots of white space. The printer also uses ink during a print head cleaning cycle, so do not perform cleaning cycles unless necessary.

If you replace an ink cartridge before its Ink Out light flashes, the sensor that tells you when ink is out will not work correctly with the new cartridge.

Appendix A

Using Optional Interfaces

You can use various interface boards to supplement the capabilities of your printer's built-in hardware interfaces for use with your PC or Macintosh.

This appendix provides information about using optional interfaces with your PC and describes how to install a board in your printer. For information on using optional interfaces with your Macintosh, see the *Setup and Software Guide for Macintosh.*

Interface Boards for the PC

The following EPSON interface boards are compatible with your printer:

Interface board	**Model number**
Serial Interface board	C823051/C823061
32KB Serial Interface board	C823071/C823081
32KB Parallel Interface board	C823101
Twinax Interface board	C823151
Coax Interface board	C823141
Ethernet Interface board	C823312

If you are not sure whether you need an optional interface, or if you want to know more about interfaces, contact your dealer.

Using the C823051 or C823061 Serial Interface Board

To use the C823051 or C823061 interface board, see the sections below for information on selecting the baud rate, handshake timing, and error handling. For all other data transfer conventions, such as word structure and communications protocol, see your interface board manual.

Selecting the baud rate

You can select from the following baud rates: 600, 1200, 2400, 4800, 9600, and 19200 bps (bits per second). To set the baud rate, see the bit-rate selection table in your interface board manual.

Handshake timing

When the vacant area for data in the input buffer drops to 256 bytes, the printer outputs an X-OFF code or sets the DTR flag to 1 (MARK) to indicate that it cannot receive data. When the vacant area for data in the buffer increases to 512 bytes, the printer outputs an X-ON code or sets the DTR flag to 0 (SPACE) to indicate that it is ready to receive data.

Error handling

When the printer detects a parity error, it prints an asterisk (*). The printer ignores all other errors, including framing and overrun errors.

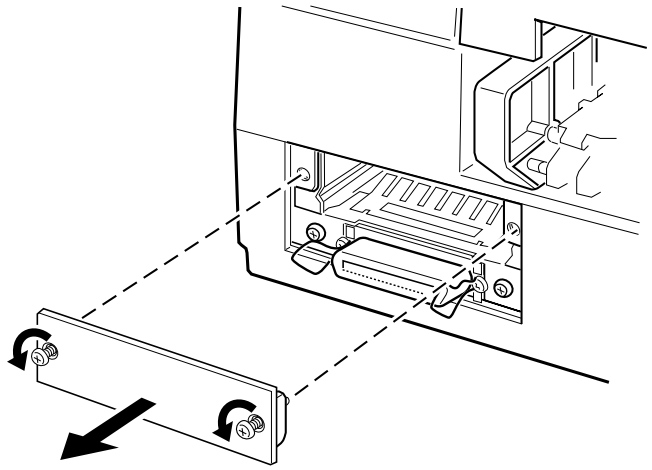
Installing an Optional Interface Board

1. Turn off the printer.

2. Unplug the printer's power cord from the electrical outlet and disconnect any interface cables.

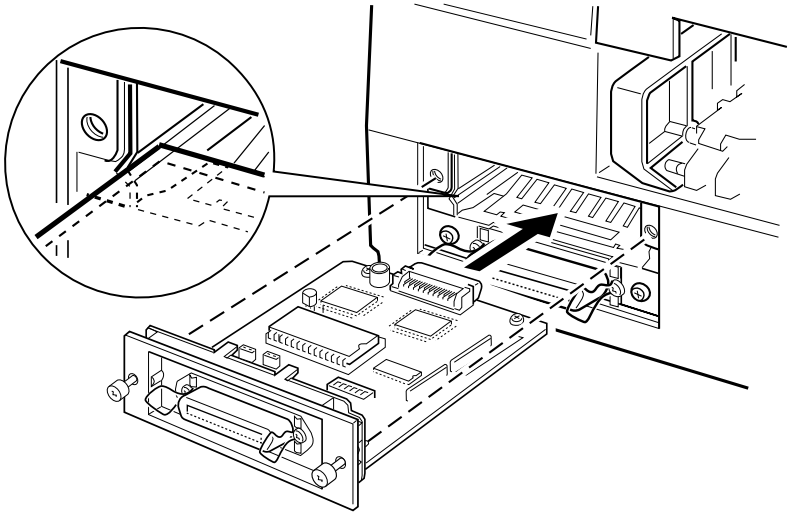
   C ***Caution:***
   Do not install or remove an interface board when the printer is connected to the electrical outlet; this may damage your printer or computer.

3. Remove the two screws securing the shield plate to the optional interface slot; then lift off the plate as shown in the following illustration. Store the plate in case you later remove the interface board.



4. Be sure to set any switches and jumpers on the interface board. See the board's manual for details. If your interface board has a jumper labelled JG, make sure that you set it to on, or the board will not work properly.

5. Slide the interface board along the slots on both sides of the interface compartment. Push it in firmly to fully insert the connector at the rear of the interface board into the printer's internal socket.



6. Secure the interface board with the two screws included with the board.

7. Connect the proper interface cable to the interface board and to your computer. Connect other interface cables if you are using more than one computer.

8. Reconnect any interface cables you disconnected in step 2.

9. Make sure the printer is off. Then plug in the power cord.

You may need to change the settings for the interface options using the printer's Default Setting mode. See "Using the Default Setting Mode" in Chapter 2 for more information.

Connecting the Printer to the Network

How you connect the printer to the network depends on your network type:

- If you are connecting to an Ethernet network using a thin coaxial (10BASE2) cable, first attach the T-connector supplied with the board to the 10BASE2 connector on the Ethernet interface board. Connect the network cable to one node of the T-connector.

  If the printer is not the last device in a daisy-chain, connect another network cable to the other node of the T-connector. If the printer is the last device, attach a 50-ohm terminator to the other node of the T-connector.

- If you are connecting to an Ethernet network using a twisted-pair (10BASE-T) cable, connect the network cable's RJ-45 connector to the 10BASE-T connector on the Ethernet interface board.

Appendix B
Technical Specifications

Printing

Printing method: On-demand ink jet

Nozzle configuration: 64 monochrome (black) nozzles
60 color* (cyan, magenta, yellow) nozzles
(20 × 3; 20 for each color)

* Available only with the optional color print head and ink cartridge installed

Printable columns and printing speed:

Character pitch (characters per inch)	Printable columns	LQ printing speed (characters per second)	Draft printing speed (characters per second)
10	136	200	400
12	169	240	480
15	200	300	600
17 (10 condensed)	233	343	686
20 (12 condensed)	272	400	800

Resolution: Maximum 720 × 720 dpi

Paper feed speed: 72 milliseconds per 1/6-inch line

Input buffer: 256KB

Print direction: Bidirectional with logic seeking for text and graphics; unidirectional and autodirectional modes available in Default Setting mode

Control code: ESC/P 2 and expanded raster graphics code
IBM XL24E emulation code

Line spacing:	1/6-inch (default), 1/8-inch, or programmable in 1/360-inch increments
Character tables:	1 Italic and 10 graphics character tables
Character sets:	1 legal and 14 International character sets

Paper

Note:
Since the quality of any particular brand or type of paper may be changed by the manufacturer at any time, EPSON cannot guarantee the use of any particular brand or type of paper. Always test samples of paper stock before purchasing large quantities or printing large jobs.

Paper sheets:

Size	Letter (8.5 × 11 inches) A4 (210 × 297 mm) A2 (420 × 594 mm) Super A3/B (13 × 19 inches) A3 (297 × 420 mm) US B (11 × 17 inches) US C (17 × 22 inches) B4 (250 × 353 mm) B5 (176 × 250 mm) Legal (8.5 × 14 inches) Statement (8.5 × 5.5 inches) Executive (7.5 × 10 inches)
Paper types	Plain paper and EPSON's special coated paper and high-quality glossy paper
Thickness	0.0025 to 0.004 inch (0.065 to 0.11 mm)
Paper weight	Sheet feeder, 17 to 24 lb (64 to 90 g/m^2) Manual feed slot, 14 to 24 lb (52 to 90 g/m^2)

Envelopes:

Size	No. 10	9.5 × 4.1 inches (241 × 104 mm)
	DL	8.7 × 4.3 inches (220 × 110 mm)
	C5	9.0 × 6.4 inches (229 × 162 mm)
Paper types	Plain bond or air mail paper	
Thickness	0.006 to 0.02 inch (0.16 to 0.52 mm)	
Paper weight	12 to 24 lb (45 to 90 g / m^2)	

Index cards:

Size	A6 (105 × 148 mm)
Paper types	Plain paper
Thickness	0.21 mm
Weight	188 g / m^2

Single sheet labels:

Size	Letter (8.5 × 11 inches) A4 (210 × 297 mm)
Paper types	Plain paper (Use labels that completely cover the backing sheet.)
Total thickness	Maximum 0.2 mm

Transparencies:

Size	Letter (8.5 × 11 inches) A4 (210 × 297 mm)
Thickness	0.075 to 0.085 mm

Banner paper:

Size	8.3 to 17 inches × 16.4 feet (210 to 432 mm × up to 5 m)
Paper types	Plain paper
Thickness	0.08 mm to 0.1 mm
Weight	17 to 22 lb (64 g / m^2 to 82 g / m^2)

Continuous paper:

Size	4 to 16 inches × 4 inches (102 to 406 × 102 mm) (minimum folding length)
Paper types	Plain paper
Thickness	0.065 mm to 0.1 mm
Weight	52 g / m^2 to 82 g / m^2

Continuous labels:

Size	Backing sheet: 4 to 16 inches × 4 inches (101.6 to 406.4 × 101.6 mm) (minimum folding length) Label sheet: Minimum 2.5 × 0.9 inches (63.5 × 23.9 mm)
Paper types	Plain paper
Thickness	Total thickness: Maximum 0.2 mm Label thickness: Maximum 0.12 mm

Note:
Poor quality paper may reduce print quality and cause paper jams and other problems. If you encounter problems, switch to a higher grade of paper.

Print on special coated paper, high-quality glossy paper, envelopes, and transparencies only under these normal conditions:

Temperature	*59 to 77°F (15 to 25°C)*
Humidity	*40 to 60% RH*

(High-quality glossy paper can be stored at 20 to 60% relative humidity and 59 to 86°F (15 to 30°C).

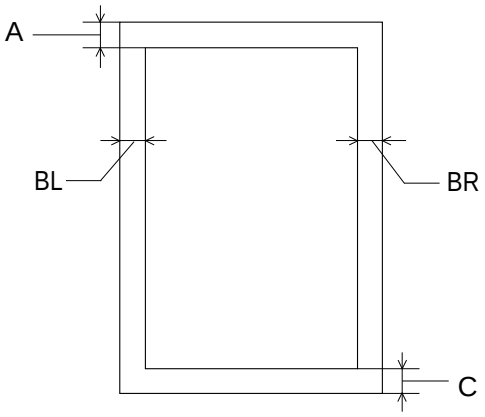
Do not load folded or curled paper, envelopes, and transparencies.

The following EPSON genuine papers are available:

S041062 Special coated paper for 720 dpi printing (Letter)
S041067 Special coated paper for 720 dpi printing (Legal)
S041069 Special coated paper for 720 dpi printing (Super A3/B)
S041070 Special coated paper for 720 dpi printing (B)
S041060 Special coated paper for 360 dpi printing (Letter)
S041066 Special coated paper for 360 dpi printing (Super A3/B)
S041072 High-quality glossy paper (Letter)
S041074 High-quality glossy paper (Super A3/B)
S041075 High-quality glossy paper (B)
S041064 Transparency film (Letter)

Printable area:

Single sheets



A The minimum top margin is 0.12 inch (3.0 mm).

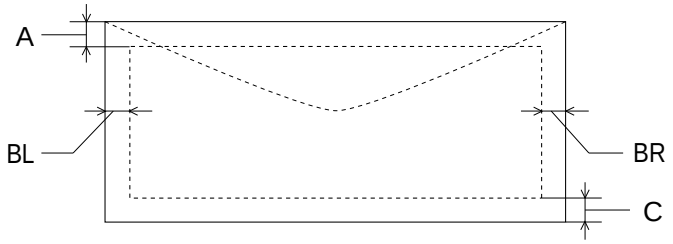
B The minimum left margin is 0.12 inch (3.0 mm).
For oversized paper, this margin is 0.98 inch (25 mm) for A3 landscape, A2 portrait, US B landscape, and US C portrait, and 0.2 inch (5 mm) for B4 landscape.

The minimum right margin is 0.12 inch (3 mm).
For oversized paper, this margin is 1.97 inches (50 mm) for A3 landscape and A2 portrait, and 2.44 inches (62 mm) for US B landscape and US C portrait.

C The minimum bottom margin is 0.55 inch (14.0 mm).

Note:
The maximum printable width is 13.6 inches (345 mm).

Envelopes



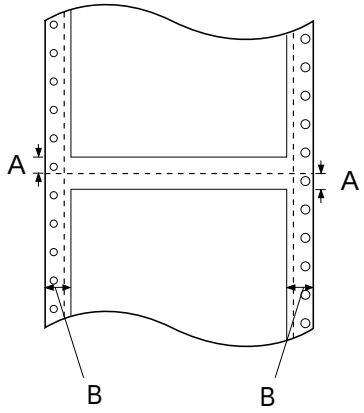
A The minimum top margin is 0.33 inch (8.5 mm).

B The minimum left margin is 0.12 inch (3.0 mm).
The minimum right margin is 0.12 inch (3.0 mm).

C The minimum bottom margin is 0.55 inch (14.0 mm).

Note:
Load envelopes long edge first, face down.

Continuous paper



A The minimum top and bottom margins above and below the perforation are 9.0 mm (0.35 inch).

B The minimum left and right margins are 13 mm (0.51 inch).

Note:
The maximum printable width is 345 mm (13.6 inches).

Ink Cartridges

Black ink cartridge (S020062):

Color	Black	
Print capacity*	1900 pages (A4 paper; text)	
Cartridge life*	2 years from production date and up to 6 months after opening the package at 77°F (25°C)	
Temperature	Storage:	–22 to 104°F (–30 to 40°C) 1 month at 104°F (40°C)
	Transit:	–22 to 140°F (–30 to 60°C) 1 month at 104°F (40°C) 120 hours at 140°F (60°C)
	Freezing:**	27°F (–3°C)
Dimensions	1.0 inch (W) × 5.5 inches (D) × 4.2 inches (H) 25.1 mm (W) × 139.6 mm (D) × 105.3 mm (H)	

Color ink cartridge (S020049):

Colors	Cyan, magenta, and yellow	
Print capacity*	320 pages (A4; 360 dpi; 5% of each color)	
Cartridge life*	2 years from production date and up to 6 months after opening the package at 77°F (25°C)	
Temperature	Storage:	–4 to 104°F (–20 to 40°C) 1 month at 104°F (40°C)
	Transit:	–22 to 140°F (–30 to 60°C) 1 month at 104°F (40°C) 120 hours at 140°F (60°C)
	Freezing:**	29°F (–6°C)
Dimensions	1.7 inches (W) × 2.2 inches (D) × 1.5 inches (H) 42.9 mm (W) × 56.5 mm (D) × 38.5 mm (H)	

* Ink cartridge life may vary. If you often print large graphics and dense text with little white space, you use ink faster than if you print pages with lots of white space.

** The ink thaws in approximately 3 hours at 77°F (25°C).

C ***Caution:***
Use only genuine EPSON ink cartridges and do not refill them. Other products may cause damage to your printer that is not covered by EPSON's warranties.

Do not use an ink cartridge after the expiration date on the package.

Mechanical

Paper feed method:	Friction, tractor feeder
Paper path:	Sheet feeder, front entry Manual feed slot, rear entry Tractor feeder, rear entry
Sheet feeder capacity:	100 sheets at 17 lb (64 g / m^2) paper 70 sheets* of EPSON special coated paper 30 sheets of EPSON high-quality glossy paper 50 sheets of transparency film 30 index cards 10 envelopes * For oversized coated paper, such as Super A3/B and A2, the sheet feeder capacity is 30 sheets.
Total print volume:	75,000 pages (A4, text)
Dimensions:	Storage Width: 26.1 inches (664 mm) Depth: 19.8 inches (504 mm) Height: 8.0 inches (202 mm) Printing Width: 26.1 inches (664 mm) Depth: 24.4 inches (619 mm) (maximum) Height: 8.0 inches (202 mm)
Weight:	24.9 lb (11.5 kg) without the ink cartridges

Electrical

Input voltage range:	103.5 to 132 V
Rated frequency range:	50 to 60 Hz
Input frequency range:	49.5 to 60.5 Hz
Rated current:	0.7 A
Power consumption:	Approx. 23 W (during self test, LQ at 10 cpi)

Environmental

Temperature:	Operation	50 to 95°F (10 to 35°C)
	Storage*	–4 to 140°F (–20 to 60°C) 1 month at 104°F (40°C) 120 hours at 140°F (60°C)
Humidity:	Operation	20 to 80% RH
	Storage*	5 to 85% RH (without condensation)

* Stored in shipping container

Safety Approvals

Safety standards:	UL 1950 with D3, CSA 22.2 950 with D3
EMC:	FCC part 15 subpart B class B

Fonts

The printer comes with an installed set of fonts, which are selectable using the Default Setting mode. However, the printer always uses the fonts you select with your software program. The only time you need to select the printer's installed fonts is when your software program does not allow you to select fonts. You can select other font and pitch combinations using ESC/P 2 commands, as described in Appendix C.

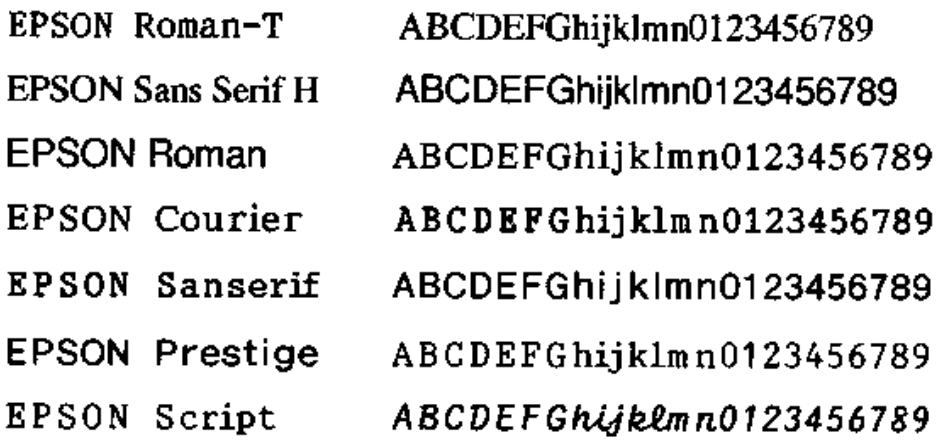
Bitmap fonts

Fonts	10 cpi	12 cpi	15 cpi	Proportional
EPSON Roman	√	√	√	√
EPSON Sans Serif	√	√	√	√
EPSON Courier	√	√	√	—
EPSON Prestige	√	√	√	—
EPSON Script	√	√	√	—

Scalable fonts

Fonts	Minimum point size	Maximum point size	Increments
EPSON Roman	8	32	2
EPSON Sans Serif	8	32	2
EPSON Roman T	8	32	2
EPSON Sans Serif H	8	32	2

Font samples



Interface Specifications

Data format:	8-bit parallel, IEEE P1284 compatible mode
Synchronization:	$\overline{\text{STROBE}}$ pulse
Handshake timing:	BUSY and $\overline{\text{ACKNLG}}$ signals
Signal level:	TTL compatible
Connector:	36-pin, Centronics connector or equivalent

Pin assignments

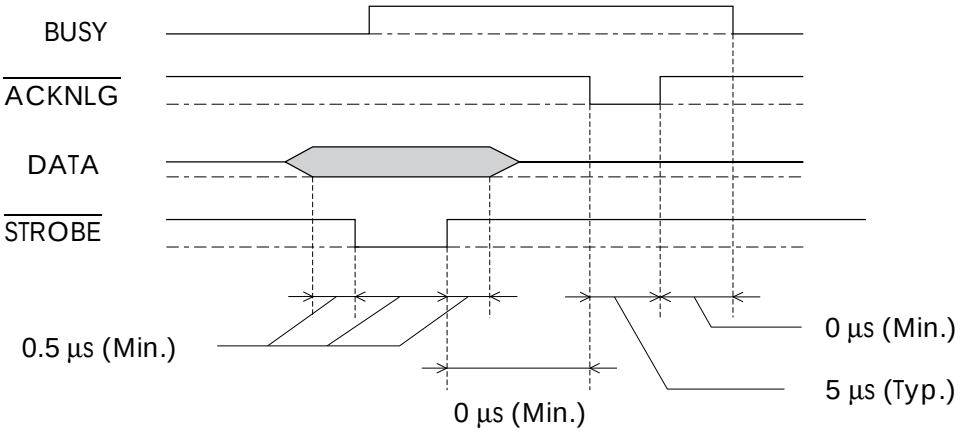
Signal Pin	Return Pin	Signal	Direction	Description
1	19	$\overline{\text{STROBE}}$	IN	$\overline{\text{STROBE}}$ pulse to read data.
2 3 4 5 6 7 8 9	20 21 22 23 24 25 26 27	DATA 0 DATA 1 DATA 2 DATA 3 DATA 4 DATA 5 DATA 6 DATA 7	IN IN IN IN IN IN IN IN	These signals represent information in bits 0 to 7 of parallel data respectively. Each signal is at HIGH level when data is logical 1 and LOW when it is logical 0.
10	28	$\overline{\text{ACKNLG}}$	OUT	About a 5-µs pulse. LOW indicates data has been received and the printer is ready to accept more data.
11	29	BUSY	OUT	A HIGH signal indicates the printer cannot receive data. The signal goes HIGH in the following cases: 1) During data entry (for each character) 2) During initialization 3) During self test, demonstration, and default-setting printing 4) During a printer-error state

Signal Pin	Return Pin	Signal	Direction	Description
12	28	PE	OUT	A HIGH signal indicates the printer is in a paper-out state or in an error state.
13	28	SLCT	OUT	Pulled up to +5 V through 1 kΩ resistance
14	30	$\overline{\text{AUTO}}$ $\overline{\text{FEED}}$ $\overline{\text{XT}}$	IN	Not used
15	—	NC	—	Not used
16	—	GND	—	Logic ground level
17	—	CHASSIS GND	—	Printer's chassis ground, which is connected to the logic ground
18	—	Logic H	OUT	Pulled up to +5 V through 3.9 KΩ resistance
19-30	—	GND	—	Twisted-pair return signal ground level
31	30	$\overline{\text{INIT}}$	IN	When this signal goes LOW, the printer controller is reset to its state when the power is first turned on and the print buffer is cleared. This level is normally HIGH; its pulse width must be more than 50 µs at the receiving terminal.
32	29	$\overline{\text{ERROR}}$	OUT	This signal level goes LOW when the printer: 1) Is out of paper 2) Is in an error state 3) Has no ink cartridges installed
33	—	GND	—	Same as for Pins 19-30
34	—	NC	—	Not used
35	—	+5 V	OUT	Pulled up to +5 V through 1.0 KΩ resistance
36	30	$\overline{\text{SLIN}}$	IN	Not used

Note:

- *The column heading "Direction" refers to the direction of signal flow as viewed from the printer.*
- *"Return Pin" denotes the twisted-pair return pin to be connected at signal ground level. For the interface wiring, be sure to use a twisted-pair cable for each signal and to complete the connection on the return side.*
- *All interface conditions are based on TTL level. Both the rise and fall times of each signal must be less than 0.2 microseconds.*
- *Data transfer must be carried out by observing the $\overline{ACKNLG}$ or BUSY signal. Data transfer to this printer can be carried out only after receipt of the $\overline{ACKNLG}$ signal or when the level of the BUSY signal is LOW.*

Timing chart



Transition time (the rise and the fall) of every signal must be less than 0.2 µs.

Initialization

The printer can be initialized (returned to a fixed set of conditions) in these ways:

Hardware initialization	* The printer is turned on. * The printer receives an $\overline{INIT}$ signal from the parallel interface: pin 31 goes LOW
Software initialization	* Software sends the ESC @ (initialize the printer) command; the last panel settings are kept
Control panel initialization	* Hold down the Pause button and the Alt button; the last panel settings are kept

All three initialization methods reset the font according to the default settings selected using the control panel. However, ESC @ does not initialize the printer mechanism, clear the input data buffer, or clear the user-defined character set. The control panel initialization does not initialize the printer mechanism or clear the user-defined character set.

Default Settings

The table below shows the default settings that take effect when the printer is initialized.

Item	**Default setting**
Top-of-form position	Current paper position
Page length	Single sheets: measured by self-test printing
Left and right margins	Cancelled
Line spacing	1/6-inch line spacing
Character pitch	Last font selected in Default Setting mode
Vertical tab position	Cleared
Horizontal tab positions	Every eight characters
Font selection	Last font selected in Default Setting mode
Special printing effects	Cancelled (except condensed and economy printing)
User-defined character set	Hardware/control panel initialization: cleared Software initialization: deselected only

In addition, hardware and control panel initialization erases any text in the data buffer.

Appendix C

Commands and Character Tables

Command List

This printer works with the two sets of commands described in this section.

EPSON ESC/P 2 Commands

Select the EPSON ESC/P 2 printer commands in your DOS software programs for the most advanced fonts and graphics available. If you need more information about using printer commands, you can purchase the *ESC/P 2 Reference Manual* (ESCP2REF) from EPSON Accessories by calling (800) 873-7766 (in the U.S. only). In Canada, call (800) BUY-EPSON for sales locations.

General operation:
ESC @, ESC U, ESC EM

Paper feeding:
CR, FF, LF, ESC 0, ESC 2, ESC 3, ESC +

Page format:
ESC (C, ESC C, ESC C 0, ESC Q, ESC l, ESC (c, ESC N, ESC O

Print position motion:
ESC $, ESC \, ESC (V, ESC (v, ESC D, HT, ESC B, ESC J, VT

Font selection:
ESC k, ESC x, ESC X, ESC P, ESC M, ESC g, ESC p, ESC 4, ESC 5, ESC E, ESC F, ESC !

Font enhancement:
ESC W, DC 4, SO, DC2, SI, ESC w, ESC G, ESC H, ESC T, ESC S, ESC -, ESC (-, ESC q

Spacing:
ESC SP, ESC c, ESC (U

Character handling:
ESC t, ESC (t, ESC R, ESC %, ESC :, ESC &, ESC 6, ESC 7, ESC (^

Bit image:
ESC *

Graphics:
ESC (G, ESC ., ESC (e, ESC (i

Color:
ESC r

Printing mode:
ESC (K

IBM XL24E Emulation Codes

This printer emulates the IBM Proprinter™ with the following commands. (For detailed information, see the IBM X24/X24E reference manual.)

General operation:
NUL, DC3, ESC j, BEL, CAN, DC1, ESC Q, ESC [K, ESC U

Paper feeding:
FF, LF, ESC 5, ESC A, ESC A (AGM*), ESC 0, ESC 1, ESC 2, ESC 3, ESC 3 (AGM*), CR

Page format:
ESC C, ESC X, ESC N, ESC O, ESC 4

Print position motion:
ESC d, ESC R, ESC D, HT, ESC B, VT, ESC J, ESC J (AGM*)

Font selection:
DC2, ESC P, ESC :, ESC E, ESC F, ESC I

Font enhancement:
DC4, SO, ESC SO, ESC W, ESC [@, SI, ESC SI, ESC G, ESC H, ESC T, ESC S, ESC -, ESC _

Spacing:
BS, SP, ESC [\

Character handling:
ESC 6, ESC 7, ESC [T, ESC ^, ESC \

Bit image:
ESC K, ESC L, ESC Y, ESC Z, ESC [g, ESC * (AGM*)

* Alternate Graphics Mode

Character Tables

The printer comes with an installed set of character tables. However, when printing from Windows and most DOS software programs, the printer prints the characters you see on screen and does not use its built-in character tables. Unless you're printing from a DOS program, and cannot print the character you need, you should never have to change the character table.

Note:
You never need to select the printer's character tables or fonts when using the printer with a Macintosh.

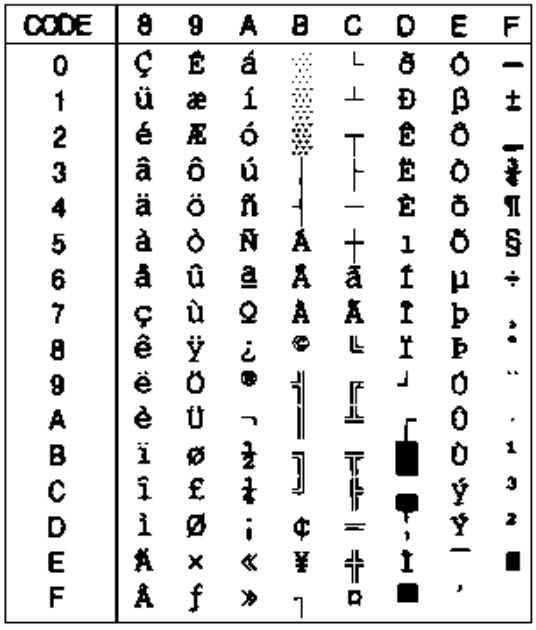
These character tables are selected using the printer's Default Setting mode or by using software commands.

All tables except the italic are the same as the PC437 table for hex codes 00 through 7F, so only the PC437 table is shown completely. The rest of the tables show only the characters for hex codes 80 through FF.

PC437 (U.S., Standard Europe)

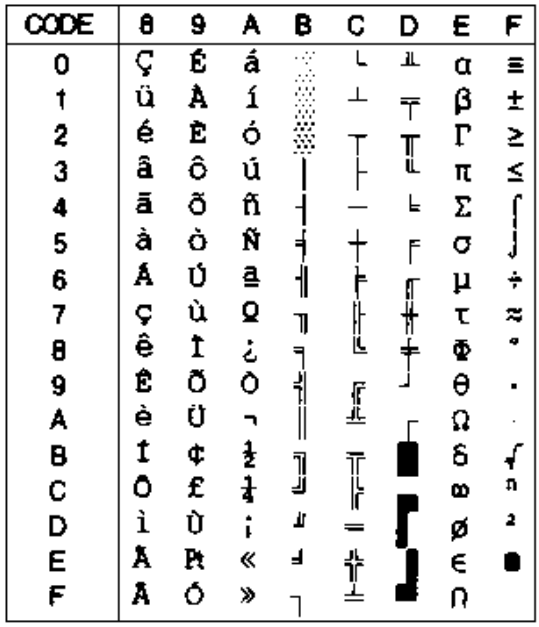
CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL			0	@	P	`	p	Ç	É	á		└	╨	α	≡
1			!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	β	±
2		DC2	"	2	B	R	b	r	é	Æ	ó	▒	┬	╥	Γ	≥
3			#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4		DC4	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5		§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6			&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7			'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8			(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	HT	EM	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	·
A	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	FF		,	<	L	\	l	¦	î	£	¼	╝	╠	▄	∞	ⁿ
D	CR		-	=	M	]	m	}	ì	¥	¡	╜	═	▌	ø	²
E	SO		.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	∈	■
F	SI		/	?	O	_	o		Å	ƒ	»	┐	╧	▀	∩	

PC850 (Multilingual)



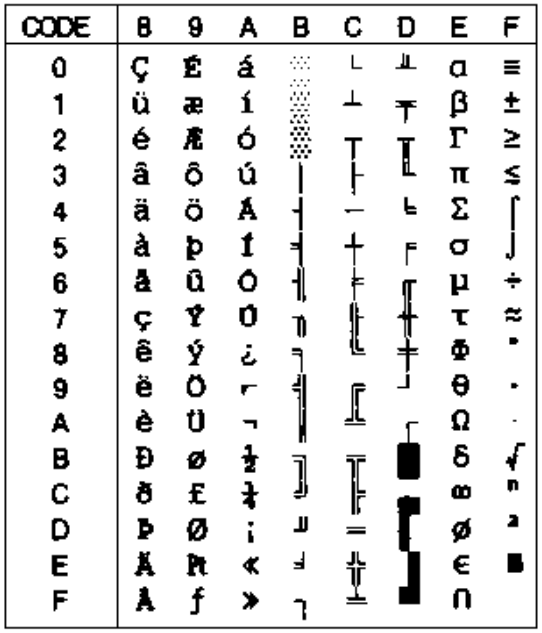
CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	ð	Ó	
1	ü	æ	í	▒	┴	Ð	ß	±
2	é	Æ	ó	▒	┬	Ê	Ô	‗
3	â	ô	ú	│	├	Ë	Ò	¾
4	ä	ö	ñ	┤	─	È	õ	¶
5	à	ò	Ñ	Á	┼	ı	Õ	§
6	å	û	ª	Â	ã	Í	µ	÷
7	ç	ù	º	À	Ã	Î	þ	¸
8	ê	ÿ	¿	©	╚	Ï	Þ	°
9	ë	Ö	®	╣	╔	┘	Ú	¨
A	è	Ü	¬	║	╩	┌	Û	·
B	ï	ø	½	╗	╦	█	Ù	¹
C	î	£	¼	╝	╠	▄	ý	³
D	ì	Ø	¡	¢	═	¦	Ý	²
E	Ä	×	«	¥	╬	Ì	¯	■
F	Å	ƒ	»	┐	¤	▀	´	

PC860 (Portuguese)



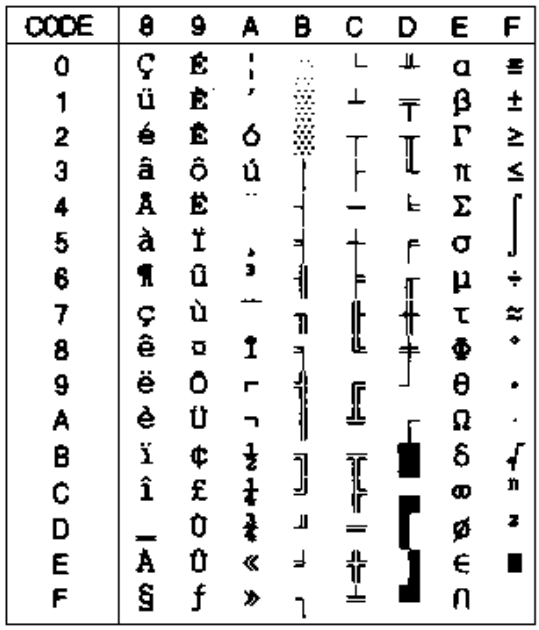
CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	╨	α	≡
1	ü	À	í	▒	┴	╤	β	±
2	é	È	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	│	├	╙	π	≤
4	ã	õ	ñ	┤	─	╘	Σ	⌠
5	à	ò	Ñ	╡	┼	╒	σ	⌡
6	Á	Ú	ª	╢	╞	╓	µ	÷
7	ç	ù	º	╖	╟	╫	τ	≈
8	ê	Ì	¿	╕	╚	╪	Φ	°
9	Ê	Õ	Ò	╣	╔	┘	Θ	·
A	è	Ü	¬	║	╩	┌	Ω	·
B	Í	¢	½	╗	╦	█	δ	√
C	Ô	£	¼	╝	╠	▄	∞	ⁿ
D	ì	Ù	¡	¢	═	▌	ø	²
E	Ã	₧	«	╜	╬	▐	∈	■
F	Â	Ó	»	┐	╧	▀	∩	

PC861 (Icelandic)



CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	╨	α	≡
1	ü	æ	í	▒	┴	╤	β	±
2	é	Æ	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	│	├	╙	π	≤
4	ä	ö	Á	┤	─	╘	Σ	⌠
5	à	þ	Í	╡	┼	╒	σ	⌡
6	å	û	Ó	╢	╞	╓	µ	÷
7	ç	Ý	Ú	╖	╟	╫	τ	≈
8	ê	ý	¿	╕	╚	╪	Φ	°
9	ë	Ö	⌐	╣	╔	┘	Θ	·
A	è	Ü	¬	║	╩	┌	Ω	·
B	Ð	ø	½	╗	╦	▄	δ	√
C	ð	£	¼	╝	╠	▌	∞	ⁿ
D	Þ	Ø	¡	╜	═	▐	ø	²
E	Ä	₧	«	╛	╬	▀	∈	■
F	Å	ƒ	»	┐	╧	▀	∩	

PC863 (Canadian-French)



CODE	8	9	A	B	C	D	E	F
0	Ç	É	¦	▒	└	╨	α	≡
1	ü	È	´	▒	┴	╤	β	±
2	é	Ê	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	│	├	╙	π	≤
4	Â	Ë	¨	┤	─	╘	Σ	⌠
5	à	Ï	¸	╡	┼	╒	σ	⌡
6	¶	û	³	╢	╞	╓	µ	÷
7	ç	ù	¯	╖	╟	╫	τ	≈
8	ê	¤	Î	╕	╚	╪	Φ	°
9	ë	Ô	⌐	╣	╔	┘	Θ	·
A	è	Ü	¬	║	╩	┌	Ω	·
B	ï	¢	½	╗	╦	▄	δ	√
C	î	£	¼	╝	╠	▌	∞	ⁿ
D	‗	Ù	¾	╜	═	▐	ø	²
E	À	Û	«	╛	╬	▀	∈	■
F	§	ƒ	»	┐	╧	▀	∩	

PC865 (Nordic)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	á	▒	└	╨	α	≡
1	ü	æ	í	▒	┴	╤	ß	±
2	é	Æ	ó	▒	┬	╥	Γ	≥
3	â	ô	ú	▒	├	╙	π	≤
4	ä	ö	ñ	▒	─	╘	Σ	⌠
5	à	ò	Ñ	▒	┼	╒	σ	⌡
6	å	û	ª	▒	╞	╓	µ	÷
7	ç	ù	º	▒	╟	╫	τ	≈
8	ê	ÿ	¿	▒	╚	╪	Φ	°
9	ë	Ö	⌐	▒	╔	┘	Θ	∙
A	è	Ü	¬	▒	╩	┌	Ω	·
B	ï	ø	½	▒	╦	■	δ	√
C	î	£	¼	▒	╠	▐	∞	ⁿ
D	ì	Ø	¡	▒	═	▌	ø	²
E	Ä	₧	«	▒	╬	▄	∈	■
F	Å	ƒ	¤	▒	╧	▀	∩	

Abicomp

CODE	8	9	A	B	C	D	E	F
0	NUL			Ò	¡	ò		
1			A	Ó	à	ó		
2		DC2	Á	Ô	á	ô		
3			Â	Õ	â	õ		
4		DC4	Ã	Ö	ã	ö		
5			Ä	Œ	ä	œ		
6			Ç	Ù	ç	ù		
7			È	Ú	è	ú		
8			É	Û	é	û		
9	HT	EM	Ê	Ü	ê	ü		
A	LF		Ë	Ÿ	ë	ÿ		
B	VT	ESC	Ì	¨	ì	ß		
C	FF		Í	£	í	ª		
D	CR		Î	-	î	º		
E	SO		Ï	§	ï	¿		
F	SI		Ñ	°	ñ	±		DEL

BRASCII

CODE	8	9	A	B	C	D	E	F
0	NUL			°	À	Ð	à	ð
1			¡	±	Á	Ñ	á	ñ
2		DC2	¢	²	Â	Ò	â	ò
3			£	³	Ã	Ó	ã	ó
4		DC4	¤	´	Ä	Ô	ä	ô
5			¥	µ	Å	Õ	å	õ
6			¦	¶	Æ	Ö	æ	ö
7			§	·	Ç	Œ	ç	œ
8			¨	¸	È	Ø	è	ø
9	HT	EM	©	¹	É	Ù	é	ù
A	LF		ª	º	Ê	Ú	ê	ú
B	VT	ESC	«	»	Ë	Û	ë	û
C	FF		¬	¼	Ì	Ü	ì	ü
D	CR			½	Í	Ý	í	ý
E	SO		®	¾	Î	Þ	î	þ
F	SI		¯	¿	Ï	ß	ï	ÿ

ISO Latin 1T

CODE	8	9	A	B	C	D	E	F
0				°	À	Ğ	à	ğ
1			¡	±	Á	Ñ	á	ñ
2			¢	²	Â	Ò	â	ò
3			£	³	Ã	Ó	ã	ó
4			¤	´	Ä	Ô	ä	ô
5			¥	µ	Å	Õ	å	õ
6			¦	¶	Æ	Ö	æ	ö
7			§	·	Ç	×	ç	÷
8			¨	¸	È	Ø	è	ø
9			©	¹	É	Ù	é	ù
A			ª	º	Ê	Ú	ê	ú
B			«	»	Ë	Û	ë	û
C			¬	¼	Ì	Ü	ì	ü
D				½	Í	İ	í	ı
E			®	¾	Î	Ş	î	ş
F			¯	¿	Ï	ß	ï	ÿ

Roman 8

HexCode	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	‘	p				¯	â	Å	Á	Þ
1			!	1	A	Q	a	q			À	Ý	ê	î	Ã	þ
2			"	2	B	R	b	r			Â	ý	ô	Ø	ã	·
3			#	3	C	S	c	s			È	°	û	Æ	Ð	µ
4			$	4	D	T	d	t			Ê	Ç	á	å	ð	¶
5			%	5	E	U	e	u			Ë	ç	é	í	Í	¾
6			&	6	F	V	f	v			Î	Ñ	ó	ø	Ì	‗
7			’	7	G	W	g	w			Ï	ñ	ú	æ	Ó	¼
8			(	8	H	X	h	x			´	¡	à	Ä	Ò	½
9			)	9	I	Y	i	y			`	¿	è	ì	Ô	ª
A			*	:	J	Z	j	z			^	¤	ò	Ö	õ	º
B			+	;	K	[	k	{			¨	£	ù	Ü	Š	«
C			,	<	L	\	l	¦			~	¥	ä	Ê	š	■
D			-	=	M	]	m	}			Ù	§	ë	ï	Ú	»
E			.	>	N	^	n	~			Û	ƒ	ö	ß	Ÿ	±
F			/	?	O	_	o				£	¢	ü	Ô	ÿ	

Italic

CODE	8	9	A	B	C	D	E	F
0	NUL			*0*	*@*	*P*	`	*p*
1			*!*	*1*	*A*	*Q*	*a*	*q*
2		DC2	*"*	*2*	*B*	*R*	*b*	*r*
3			*#*	*3*	*C*	*S*	*c*	*s*
4		DC4	*$*	*4*	*D*	*T*	*d*	*t*
5			*%*	*5*	*E*	*U*	*e*	*u*
6			*&*	*6*	*F*	*V*	*f*	*v*
7			*'*	*7*	*G*	*W*	*g*	*w*
8			*(*	*8*	*H*	*X*	*h*	*x*
9	HT	EM	*)*	*9*	*I*	*Y*	*i*	*y*
A	LF		***	*:*	*J*	*Z*	*j*	*z*
B	VT	ESC	*+*	*;*	*K*	*[*	*k*	*{*
C	FF		*,*	*<*	*L*	**	*l*	*¦*
D	CR		*-*	*=*	*M*	*]*	*m*	*}*
E	SO		*.*	*>*	*N*	*^*	*n*	*~*
F	SI		*/*	*?*	*O*	*_*	*o*	

No characters are available for hex code 15 in the italic character table.

International Character Sets

You can select one of the following international character sets using the printer's Default Setting mode or the ESC R command. For example, when you select "Italic France," the characters in the "France" row on the table below are used in the italic character table.

The following eight international character sets can be selected using Default Setting mode or with the ESC R command.

Country	ASCII code hex											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
USA	#	$	@	[	\	]	^	`	{	¦	}	~
France	#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
UK	£	$	@	[	\	]	^	`	{	¦	}	~
Denmark	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain	Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~

The following seven additional sets can be selected only with the ESC R command.

Country	ASCII code hex											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
Japan	#	$	@	[	¥	]	^	`	{	¦	}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Spain II	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
Latin America	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
Korea	#	$	@	[	₩	]	^	`	{	¦	}	~
Legal	#	$	§	°	'	"	¶	`	©	®	†	™

Characters Available with ESC (^ Command

To print the characters in the table below, use the ESC (^ command.

CODE	0	1	7
0		►	
1	☺	◄	
2	☻	↕	
3	♥	‼	
4	♦	¶	
5	♣		
6	♠	▬	
7	•	↨	
8	◘	↑	
9	○	↓	
A	◙	→	
B	♂	←	
C	♀	∟	
D	♪	↔	
E	♫	▲	
F	☼	▼	⌂

Glossary

ASCII
American Standard Code for Information Interchange. A standardized coding system for assigning numerical codes to letters and symbols.

auto line feed
When this feature is selected in the printer's Default Setting mode, each carriage-return (CR) code is automatically followed by a line-feed (LF) code.

bidirectional printing
Printing in which the print head prints in both directions (bidirectionally). This increases print speed but may reduce precise vertical alignment. Also called high-speed printing.

brightness
The lightness or darkness level of an image.

buffer
The portion of the printer's memory used to store data before it is printed.

character table
The collection of letters, numbers, and symbols that constitute the set of characters used in a particular language.

characters per inch (cpi)
A measure of the size of text characters, sometimes referred to as pitch.

CMYK
A method of specifying and creating colors using cyan (blue-green), magenta, yellow, and black (K).

condensed printing
Printing in which the width of each character is approximately 60% of the width of standard characters. Useful for fitting wide tables or spreadsheets onto paper.

contrast
The range of difference between the darkest and lightest colors in an image. The greater the difference, the higher the contrast.

control code
A special code used to control a printer function such as performing a carriage return or line feed.

cpi
See *characters per inch.*

default
A value or setting that takes effect when the equipment is turned on, reset, or initialized.

dithering
A way of arranging dots on a page to simulate a shade or tone. See also *halftoning.*

dpi
Dots per inch. The dpi measures the resolution. See also *resolution.*

driver
See *printer driver.*

economy mode printing
Printing in which images are printed with fewer dots to save ink. Economy mode printing is faster, too.

error diffusion
A halftoning method where dot patterns are randomly distributed in an image to create soft edges.

ESC/P ®
EPSON Standard Code for Printers. The system of commands sent by the computer to control the printer. It is standard for all EPSON printers and supported by most application software for personal computers.

ESC/P 2
Enhanced version of the ESC / P printer command language, including scalable fonts and enhanced graphics.

font
A style of type designated by a family name, such as Courier or Helvetica.

grayscale
An image consisting of multiple shades of gray, ranging from white to black.

halftoning
Method of repeating tiny dot patterns to represent images.

hex dump
A troubleshooting feature that helps identify the cause of communication problems between the printer and the computer. When the printer is in hex dump mode, it prints each code it receives in hexadecimal notation and ASCII characters. Also called data dump.

high-speed printing
See *bidirectional printing.*

initialization
The process of restoring the printer's default settings (fixed set of conditions).

ink jet
A non-impact method of printing in which the printer produces each character by precisely spraying ink onto paper.

interface
The connection (via a cable) between the computer and the printer over which print data is transmitted to the printer.

line feed
A control code that advances the paper one line space.

media
Materials upon which data is printed such as envelopes, plain paper, coated paper, glossy paper, or transparency film.

MicroWeave
A printing method in which images are printed in finer increments to produce laser-like images and reduce the possibility of banding.

printable area
The area of a page on which the printer can print. It is smaller than the physical size of the page due to margins.

printer driver
A software program that sends commands for using the features of a particular printer.

reset
To return a printer to its default settings.

resolution
A measure of the amount of detail that can be represented. Resolution of printed images is measured in number of dots per inch (dpi). Your printer has three resolution settings: 720 × 720, 360 × 360, and 180 × 180 dpi.

RGB
A method of specifying color by its component proportion of red, green, and blue. Computer monitors use this method to represent colors.

unidirectional printing
Printing in which the print head prints in one direction only. Unidirectional printing is useful for printing graphics because it allows precise vertical alignment.

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